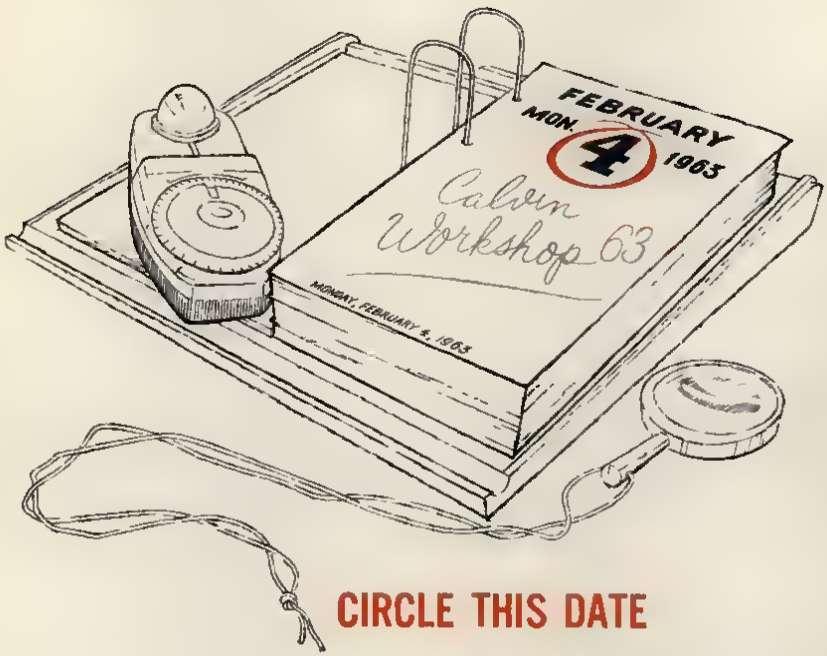
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AMERICAN Cinematographer

Magazine Of Motion Picture Photography And Production Techniques



PHOTOGRAPHING A WALT DISNEY PRODUCTION



CIRCLE THIS DATE

There are a lot of reasons for spending three days at the Seventeenth Calvin Motion Picture Workshop. Those most often mentioned are: exchange ideas, find out what's new, review fundamentals, see how the other people do it, get help on a special problem, compare techniques, and just for fun. Five hundred will be expected.

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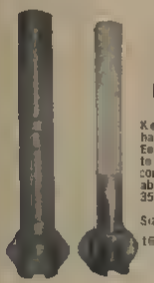
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INTERNATIONAL JOURNAL OF MOTION PICTURE PHOTOGRAPHY AND PRODUCTION TECHNIQUES

JANUARY, 1963 Vol 44 No 1

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ON THE COVER

CAMERA REHEARSAL—Edward Colman's camera crew makes dry run with dolly-mounted camera preparatory to making moving camera shot for Walt Disney's 'Savage Sam,' starring Brian Keith. Note that powerful Brute used for booster light has a shade to carry fumes and heat out of range of crew and cast; the unique sheet and housing encasing the microphone on boom (center), and the assistant cameraman running a tape on Keith as camera rolls back with the moving horsemen.

ARTHUR E. GAVIN, Editor
MARION HUTCHINS, Editorial Assistant

OFFICES—Editorial and Business 1782 No. Orange Drive, Hollywood 28, Calif. Telephone HOllywood 7-2135. EASTERN ADVERTISING REPRESENTATIVE: Paul Gilbert, 489 Fifth Avenue, New York 17, N.Y. Telephone AX 1-5641

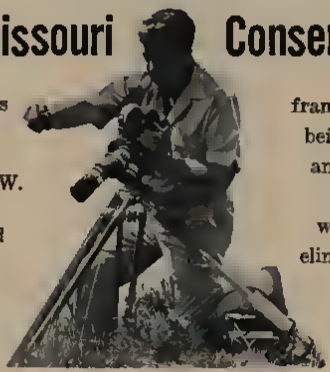
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Filming a hawk's swift plunge calls for sharp follow-focus and accurate centering of the viewfinder image. That's one reason biologist Charles W. Schwartz uses an Arriflex, in his motion picture studies of birds and animals for the Missouri Conservation Commission. The finder image is formed by the taking lens itself . . . parallax-free,



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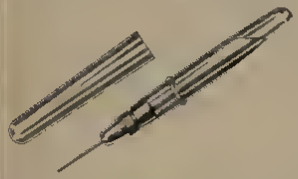
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INDUSTRY NEWS

News briefs of industry activities, products and progress

"Oscar" Nominations Balloting Begins

The 35th Annual Awards presentations of the Academy of Motion Picture Arts and Sciences of Hollywood got under way December 26th, when preliminary ballots for nominations voting in the cinematography, art direction, costume design, film editing, music scoring and best song categories were mailed to members of the Academy. Deadline for preliminary voting in the above-named categories is Monday, January 7th.

On Monday, January 14th, at the Academy's theatre, screening of pictures named in the preliminary balloting will begin. Nominations ballots for the five categories will be mailed to Academy members beginning February 11th. Voting deadline on the nominations balloting is February 19th. All nominations will be announced Monday, February 25th. Final balloting to determine the "Oscar" winners begins March 15th and closes March 30th.

The awards presentations will take place Monday evening, April 8th, in Santa Monica, Calif.

•

Calvin Workshop Dates Set

Calvin Productions, Inc., Kansas City, Missouri, has set February 4, 5, and 6th as dates for its 17th annual Calvin Workshop, which will take place on the sound stages and throughout the company's buildings at 1105 Truman Road, Kansas City.

There is no cost or obligation for those attending the workshop. "We welcome everyone who is interested or active in film and motion picture activities," said Lee Davis, Calvin's Vice president. Each year the event is attended by 400 to 500 persons with prime interest in motion picture production, cinematography, and industrial film applications. "If it is necessary that you have a personal invitation on our company letterhead," Davis added, "we will be happy to furnish same on request." This should ease the way for in-plant men eager to attend the conference and soak up some film making knowledge, but first must get their employer's consent to a leave of absence to attend.

Tentative program calls for talks, demonstrations, etc., on planning the film, the script, talent selection, location interior and exterior photography and studio lighting on Monday, February 4th. Subjects for following day include Sets and Properties, The Director, 16mm Camera Stocks, Special Camera Effects, Common Errors, and the Editing Process.

Workshop will wind up Wednesday with the program that includes, Technical and Character Animation, The Storyboard, Background Design, Lab Operations, Sound Recording and Recording Equipment.

•

Camera Mart Announces Film Editing Seminar

Camera Mart, Inc., 1845 Broadway New York, N.Y., has scheduled its first annual Film Editing Workshop Seminar for the week of October 7th through October 11, 1963.

All aspects of film editing will be covered during the five-day session through technical demonstrations, lectures, practice projects, scene-by-scene editorial analysis, and selected film showings.

The Workshop-Seminar will be held in the main ballroom of the Henry Hudson Hotel in mid-town Manhattan. A number of prominent professional film editors have agreed to participate as instructors, lecturers and guest speakers according to Charles Lipow, Camera Mart's General Manager in charge of the Workshop-Seminar. No charges or fees of any kind are involved. Attendance is limited to industrial in-plant, University and government agency film editors and associated personnel.

•

Film Test Method Saves Processing Time

A new method for standardized processing of test strips of black-and-white and color negative movie film makes it possible to evaluate exposure,

Continued on Page 8

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INDUSTRY NEWS

Continued from Page 6

lighting effects and composition of motion-picture scenes before beginning actual photography.

A paper by Charles W. Baker and Earl W. Kage of Kodak Research Laboratories, in the December "Journal of the Society of Motion Picture and Television Engineers," describes the technique, which gives results comparable to those obtained with large, continuous processing machines.

Processing equipment consists of a hanger for a 12-inch strip of 16mm or 35mm film with an attached vane agitator. The apparatus is shaped to fit the graduated, glass cylinders containing processing solutions. Black-and-white film can be viewed wet after 10 minutes of processing with the equipment in standard solutions at 75 degrees F.

The hanger permits easy loading of film while the vane agitator makes possible an unvarying agitation rate from batch to batch, even with different operators.

Repeatability of the process means that the developed film strips will be within limits for visually determining the results possible with continuous film processing machines, the paper points out.

Although there are differences between strip-processed and machine-processed films, enough information is available in strip-processed films to make them valuable, even when the user has a minimum of evaluation experience. Details not seen in the shadow areas of the strip-processed negatives probably will not be seen in color prints made from the color negatives.

•

70mm Cinamos Goin In Jopon

There were 55 motion picture theatres in Japan equipped for screening 70mm films as of June 30th, 1962. With seven more theatres currently under construction the total is expected to reach 70 by mid-January, according to *UniJapan Film Quarterly*, Japanese film industry trade publication.

Since the introduction of the first 70mm American film "Oklahoma" in 1956, the number of 70mm theatres in Japan has been rapidly increasing, and today ultra-wide-screen films may be seen in 32 major cities.

Continued on Page 52

Troubled by out-of-focus pictures?

Troubled by emulsion pile-up in your camera gate?

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BELL & HOWELL 35MM EYEMO M complete outfit 8 to 48 fps compact turret 3 lenses with filters, sunshades, drum finder List value over $1300 ... $495 00

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Continued on Pages 12 and 14

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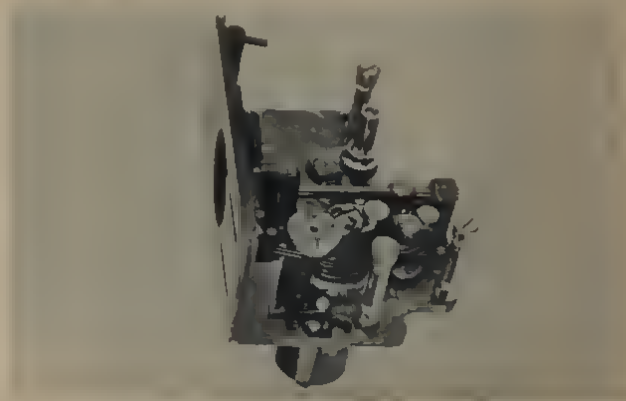
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SYNC SOUND RECORDER FOR BOLEX—Unique magnetic tape recording unit for Bolex H8 and H16 cameras is contoured to fit camera in place of door (arrow). Records on ¼" tape—3" roll sufficient for recording sound for 100 ft. of picture film. Requires no camera alteration. Outfit includes transistorized amplifier, dynamic microphone, cables, monitoring phones. Net weight with battery is less than 2 lbs. Manufactured is Louis S. Uhler, 15778 Wyoming Avenue, Detroit 38, Michigan.



NEW MITCHELL VARI-STROKE CONTROL—Vari-Stroke control added to Mitchell NC and BNC film movements permits adjusting movement timing to match variations in film being used, resulting in quieter operation of camera. Adjustment is self-locking and will not move unless turned by hand. Device is designed to obviate most of the difficulties encountered where age, climatic conditions, etc., have affected pitch or created dimensional changes in camera film stock. The Vari-Stroke enables the claw not only to move up and down, but also shortens or lengthens the stroke to accommodate the film's dimensional changes. Mitchell Camera Corporation, 666 West Harvard St., Glendale, Calif.

Continued on Page 12



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WHAT'S NEW IN EQUIPMENT, ACCESSORIES, ETC.

Continued from Page 10



SHORT LENGTH FILM PROCESSOR—Rapid processing of short lengths of film to check exposure, etc, prior to actual production shooting is afforded by new Rapromatic Series 100 portable processor Technique employs Raproroll saturated web which is interleaved with film and effects processing of same when under forced contact in operation of the processor. Unit is available in a variety of manually-operated or motor-driven models which handle 16mm and/or 35mm film in casettes up to 100 ft. in length. List price is about $185.00 Fifty-foot 35mm Raprorolls are $7 25 each Manufacturer is Rapromatic, Inc, 235 B Robbins Lane, Syosset, L I., New York.



ARRI SYNC SIGNAL GENERATOR—Now available as an original factory installation on new 35mm Arriflex cameras is Arriflex sync signal generator affording synchronization of picture film with portable quarter-inch tape recorders in the production of sound films. The 60-cycle, 1.4-volt output of generator is compatible with all tape synchronous sound recording systems such as Rangertone, Echelon, Pilotone, etc A marker light in camera automatically establishes start marks on film The combination signal generator and start marker installation is available through all Arriflex dealers. Signal generator only may be installed on any 16mm or 35mm Arriflex camera Arriflex Corporation of America, 257 Park Avenue, South, New York 10, N. Y.

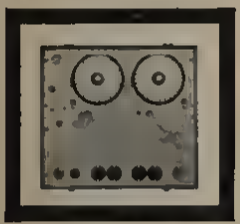
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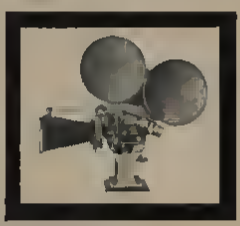


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Q & A

Technical Questions and Answers

Q.—*Will appreciate answers to the following questions relative to set lighting:*

(1) How do the major studios provide fill light on huge, very deep sets such as a typical ballroom set in costume dramas? Obviously, using broads placed at either side of the camera would flood only a very shallow portion of the set nearest the camera However, in the type of scene mentioned above, I have noticed that very deep sets are smoothly filled with light from front to back This doesn't appear to be spotlighting from the top of the set walls, it is too even for that, too soft.

(2) What is the fundamental use of cone lights? Have they merely replaced double broads? Are they ever used for very soft key lighting?—J. W, Cumberland. R I.

A.—Since all big sets erected in the studios have parallels overhead, illuminating such sets smoothly and in depth is a relatively simple matter The lamps —usually 5K's or 10 K's—are mounted on the parallels and provide smooth illumination from overhead over the entire set. Very often these lamps are diffused, with spun glass or plain gelatin diffusers. for improved illumination quality.

Cone lights provide the cinematographer with the nearest thing to "shadowless" light on the sound stage. They make ideal fill lights and are sometimes used to replace broads or double broads. Of course, the Cone light takes up more space than does the broad It is possible to use a Cone light for very soft key lighting, but studio cinematographers prefer to use a modeling light plus a fill light, which can be controlled to give better definition. more interesting faces

Q.—*How does the Gossen Lunasix meter compare with the Spectra?*—M. F., Oakville, Ontario, Canada

A.—The Spectra is essentially an incident light meter, although it may also be used for reflected light readings The Gossen Lunasix, on the other hand is basically a reflected light meter, although it is capable of incident light evaluation also.

The Spectra's large hemispheric light collector is ideally designed to provide high efficiency in collecting and measuring incident light falling on scene or subject from all angles.

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Q.—*For a film I am shooting on 16mm Ektachrome Commercial, how can I create the illusion of a chest X-Ray being developed in a darkroom?* —L. L. B. Springfield, Mo

A.—For the answer to your question, we consulted two different Hollywood special effects specialists Following are their respective answers.

You will need two X Ray plates, both the same size, one blank, the other with completely developed X-Ray image Photograph hand submerging blank plate in tray of solution Hold it still, then withdraw hand from scene. Cap lens and wind back film to start of exposure. and remove cap for re-exposure. Place plate with developed image in identical spot in tray as blank plate, fade-in and shoot a simple 3-foot dissolve Place hand in same position as for first exposure. then lift and remove plate Or . . .

If shot is to be a static one, shoot once with blank X-Ray plate in tray and second time with the developed plate in tray and with camera locked down. A long dissolve between the two shots should yield gradual appearance of image.

Where the shot is to contain action. reversal system is probably easiest to handle Here X-Ray plate is first exposed normally with the reverse of the desired image (i e neg for pos or vice versa). Then follow normal reversal processing, develop, bleach and clear. Process may be stopped at this point and plate exposed to white light. Plate may now be developed in the light while photographing with desired image fading in as development occurs Reversal kit, chemicals and instructions can be had at most photographic stores ■

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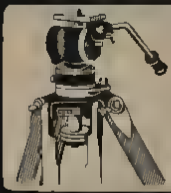
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Today, with our advancing technology, adapting principles of hydraulics and oil gyroscopes we have evolved the fluid and gyro tripod heads Great skill and dexterity is no longer an absolute requirement for fine, professionally smooth camera movement. Smoothness is now a built-in characteristic of each of the tripod heads shown here We at F & B sell and recommend these most enthusiastically

If you are still doing great work with outmoded friction or geared heads, we congratulate you. Still we urge you to modernize. Why not treat yourself to one of these fine fluid or gyro head outfits, and see if you don't agree that it makes your work easier.

With the help of many skilled cameramen, we have made up a chart so that you could select the outfit most suited to your needs If you want more detailed information on any of these, or if you would like to "try out" or arrange for a demonstration with no obligation, please write us.

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MILLER "D"	✓	✓	✓			✓	✓		✓					
MILLER PRO		✓	✓			✓	✓	✓	✓	✓	✓			
O'CONNOR C	✓	✓	✓			✓	✓		✓					
O'CONNOR 100					✓		✓	✓	✓	✓	✓	✓	✓	
O'CONNOR 200 A												✓	✓	
SACHTLER WOLF DOUBLE GYRO U K A				✓	✓									
SACHTLER WOLF DOUBLE GYRO U K	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			
SPUTNIK					✓							✓	✓	
NCE HYDRO FLUID		✓				✓	✓	✓	✓	✓	✓			

ASK F & B

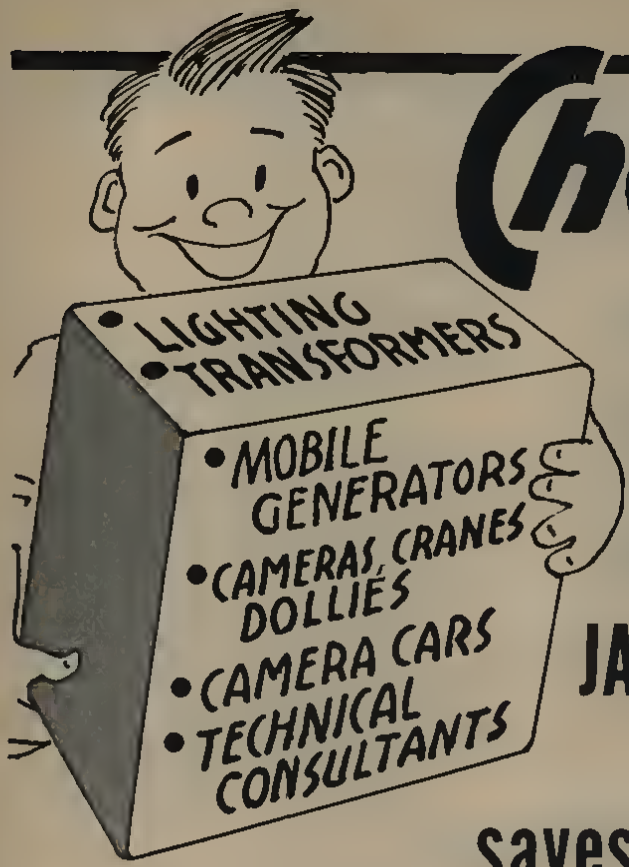
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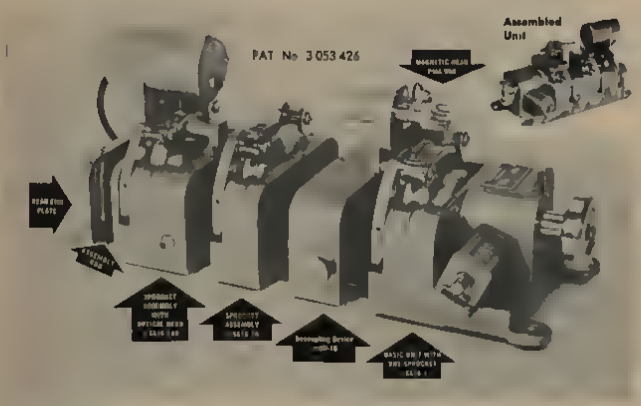
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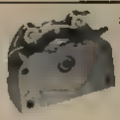
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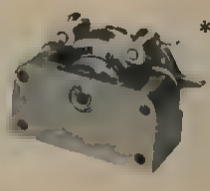
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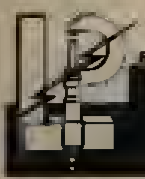


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Literature

BOOKLETS, CATALOGUES AND BROCHURES AVAILABLE FROM EQUIPMENT MANUFACTURERS

Splicing and Repair Tapes

Permacel, New Brunswick, New Jersey, manufacturer of pressure sensitive tapes, electrical insulating materials and adhesives, has prepared a new descriptive folder on its Permacel Film Splicing and Repair Tapes, which are made of Mylar for motion picture and magnetic film.

•

Colortrends Newsletter

ColorTran Industries, 630 South Flower St., Burbank, Calif., manufacturers of specialized lighting equipment for motion picture and Television, is publishing periodically *ColorTrends*, a new 4 page bulletin that includes articles and photographs of company's various items of equipment in practical use. Readers of A.C. are invited to be placed on mailing list to receive copies of the new publication.

•

Bulletin on Recording

Emcee is title of new publication issued periodically by Magnasync Corporation, 5546 Satsuma Avenue, North Hollywood, Calif. Edited specifically for Magnasync's many customers and prospective customers, bulletin illustrates and describes interesting applications of Magnasync equipment. Company manufactures magnetic sound recording and playback equipment.

•

Microphone Literature

A new products brochure describing six new Shure microphones is available from Shure Brothers, Inc., Evanston, Ill. It includes specifications and prices on company's latest microphones, plus information on its new quick disconnect microphone isolation units and a new transistorized stereo preamplifier.

•

Film Flow Charts

Professional methods of processing motion picture film are described in a set of eight flow charts recently published as producer service bulletins by General Film Laboratories, 1546 North Argyle Avenue, Hollywood 28, Calif. ■

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BEHIND THE CAMERAS

WHAT THE INDUSTRY'S CAMERAMEN WERE SHOOTING LAST MONTH

BY MARION [illegible]HINS

NOTE: Asterisks following titles indicate television film productions.

AMERICAN-INTERNATIONAL

GILBERT WARRENTON, ASC, "Bikini" (Michelson-Arkoff Prod.) with Tab Hunter and Frankie Avalon. Anthony Carras, director.

ALLIED ARTISTS

FLOYD CROSBY, ASC, "Black Zoo" (Herman Cohen Prod., P'Vision & Eastman color) with Michael Gough and Rod Lauren. Robert Cordon, director.

CASCADE STUDIOS

HENRY FREULICH, ASC, Commercials*.

ROY SEAWRIGHT, Commercials*.

CBS—N.Y.

CHARLES MACK, LEO ROSSI, ROBERT CLEMENS, "CBS Reports"*.

FRED HOFFMAN, MIKE ZINGALE, "Candid Camera"*.

COLUMBIA STUDIOS

JAMES DROUGHT, Commercials**

GORDON AVIL, ASC, "The Ceady Web" (Wm. Castle Prod.; Eastman color) with Kathy Dunn and Murray Hamilton. William Castle, producer-director.

PHILIP TANNURA, ASC, IRVING LIPPMAN, "Route 66"*

ROBERT WYCOFF, "Dennis the Menace"*; Commercials*.

ROBERT PITTACK, ASC, "Mr. Smith Goes to Washington"*

JOSEPH BIROC, ASC, "Grindl"* (pilot).

CHARLES LAWTON, ASC, Commercials*

BURNETT GUFFEY, ASC, Commercials"*

ROBERT BRONNER, ASC, Commercials*.

CHRISTOPHER CHALLIS, "The Victors" (High road Prod.; P'Vision; shooting in England) with Vincent Edwards and Christine Kaufmann. Carl Foreman, producer-director.

CHARLES WELBORN, "Empire"*.

RICHARD RAWLINGS, "Higgins"*.

FRED GATELY, ASC, "Hazel"*.

GEAT ANDERSEN, ASC, "Doane Reed Show"*

DESILU—Cahuenga Studio

ROBERT deGRASSE, ASC, "The Danny Thomas Show"*, "Dick VanDyke Show"*.

MAURY GERTSMAN, ASC, "I'm Dickens—He's Fenster"*

HENRY CRONJAGER, "The Joey Bishop Show"*.

SID HICKOX, ASC, "The Andy Griffith Show"*.

DESILU—Culver City

LOTHROP WORTH, ASC, "The Real McCoy's"*.

CHARLES STRAUMER, "The Untouchables"*.

DESILU—Gower

HAL MOHR, ASC, "Breaking Point"* (pilot)

RALPH WOOLSEY, ASC, "Morrison's Retreat"* (pilot).

MAURY GERTSMAN, ASC, "The Lucy Show"*.

TED VOIGHTLANDER, 'Ben Casey"*

EDWARD FITZGERALD, ASC, "Lassie"*.

ROBERT PLANCK, ASC, "My Three Sons"*

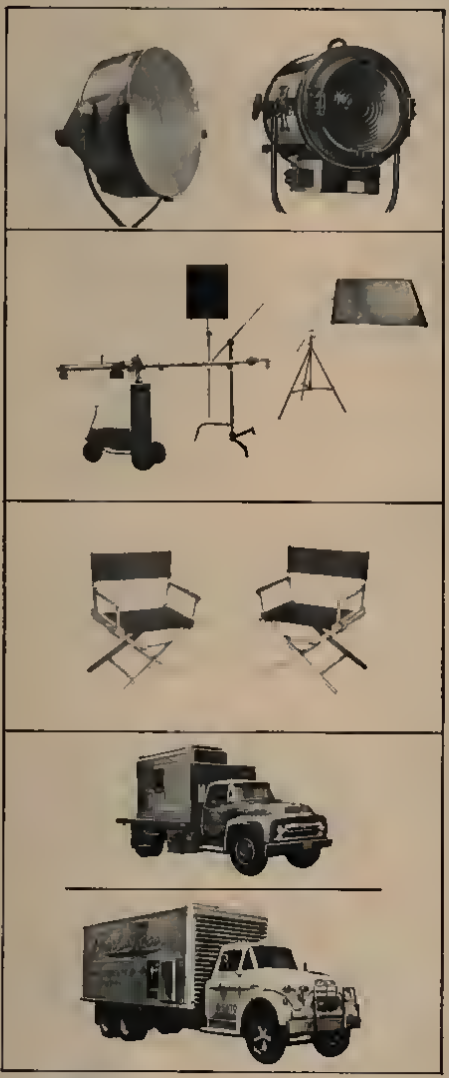
Continued on Page 56



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Photographing A Walt Disney Production

Edward Calman, ASC, who has filmed six feature films to date for Walt Disney, found new and exciting photographic challenges in "Savage Sam."

By DARRIN SCOT

SCATTERED AROUND A CLUMP of oak trees halfway up a parched mountainside in California's San Fernando Valley, six Hollywood stunt riders, decked out in the vermillion hues and war bonnets of Apache warriors, and 50 specially trained horses wait impatiently to begin one of the most difficult and spectacular scenes ever attempted for Walt Disney's feature motion picture, "Savage Sam."



THE CAMERA CREW in action filming a running camera shot for "Savage Sam," Walt Disney's latest. As the camera car moves swiftly, booster lights are played on the actors, the mike man has the microphone pointed properly, the director keeps in touch with other technicians by radio phone, and the still man shots a record of the action.

Surrounding a small lake below the horses and riders, six camouflaged camera crews under the supervision of Director of Photography Edward Coleman, ASC, zero-in on a seven-foot high, twenty-foot wide precipice. Director Norman Tokar shatters the tense silence with the command, "Okay —let's roll 'em!"

"Camera one, speed—camera two, speed—camera three, speed," and so on, the operators report from around the lake.

"Action!," the director shouts over the P.A. system. "Bring on the horses!"

The whoop and holler of the wranglers in Indian disguise rings through the air, and slowly, two at a time, then galloping four and five abreast, the horses careen down the sheer slope and into the lake.

"Number one, clear!" shouts the assistant director. Down a narrow path gallops the first "Apache." His mount leaps off the embarkment and into the lake.

"Number two, clear!," and down come two youngsters on a big bay. The horse hurtles off the barrier into the water

"Number three, clear," The third "Apache" spurs his horse down the path and off into the now crowded lake.

"Number four, clear!" Two riders on separate horses gallop down the hill together, then plunge off the cliff almost simultaneously in a breathtaking leap.

When the director yells, "Cut!," the 150-man motion picture crew burts into spontaneous applause.



HERE MAY BE SEEN five of the six Mitchell cameras used by Ed Colman to cover all angles of big climactic scene for "Savage Sam," photographed in Eastman Color. The camera equipment and the barges on which some of the cameras will be mounted are being made ready under the supervision of Colman and director Norman Tokar (out of picture)

The actual filming of this spectacular sequence took only one minute and fifteen seconds, but the planning and preparation required much time and effort of a large crew of technical experts. The decision to use six cameras simultaneously to film it—a procedure virtually non-existent in present-day, budget-minded Hollywood—was prompted by the fact that considerable production time could be saved because a single take could produce six different camera angles of the intricate sequence, with the action perfectly matched — greatly minimizing the need to repeat the complicated maneuvers with the horses and avoiding delays necessary for separate camera set-ups.

Four cameras were located at various vantage points on the lake shore, while two others were positioned on a raft anchored in the middle of the lake to record closer shots of the horses swimming toward them. As the animals leaped off the cliff, low camera angles helped to exaggerate the height of the jump; also use of lenses of different focal lengths provided variety for the editor in cutting the sequence.

"Savage Sam," a sequel to the highly successful Disney film, "Old Yeller," made four years ago, is an outdoor action epic having to do with dogs, horses, Indians and kidnapped children. It may have set some sort of record in that 95% of its scenes are actual exteriors shot in various picturesque locations not far from Hollywood.

The horse-jump sequence was filmed on the sprawling Albertson Ranch, 13,000 acres of scenic motion picture locations near Thousand Oaks in the San Fernando Valley. Featuring a variety of terrain—including lakes, mountains, unusual vegetation, sculptured rocks and giant trees—the ranch is used regularly by film companies. Much of the "Gunsmoke" television series is photographed here.

Additional scenes were shot at Escondido Canyon, a starkly eroded area studded with overhanging rocks. Still other scenes were filmed at the scenic Walt Disney Ranch near Saugus, a land-locked Shangri-La with clear air and blue skies free of the smog

Continued on Page 40

AFTER PHOTOGRAPHY, WHAT?

The factors that affect the quality and the cost of your release prints.

THE BASIC STAGES are essentially the same in all 35mm B&W motion picture production: expose camera stock, process it, print a working copy, edit, conform, make the first intermediate negatives and/or masters, make a first trial print, and finally the release prints. There are, however, some choices that can be made within these stages.

During the shooting of a production, a record of all takes is noted on the camera log (or scene-and-take sheets), with notations to print or not to print the various takes. Following the processing of the negative, the laboratory follows these instructions and removes the unwanted takes before printing. Obviously, this serves two purposes: it saves money and it is a first step in the process of editing the film, since it eliminates unwanted material from the footage that is to be handled by the editor.

After the unwanted takes are removed by the laboratory and the remaining negative footage is spliced, the dailies are printed. Although there is occasional demand for one-light dailies, the normal requirement is for timed dailies which enables the producer to estimate his eventual release print quality while screening the daily footage.

Ultimately the dailies are edited and strung together to form what is known as the workprint. Sometimes a producer will require an additional copy of the workprint so that the sound recording department and the film editor can work on the picture simultaneously. In such instances, the usual practice is to make a temporary dupe negative from the edited workprint and a temporary positive print from the temporary dupe. While it is true that another set of dailies can be made from the camera negative, this is inadvisable because it would subject the negative to additional and unnecessary handling, and it would also involve the additional work of conforming the second set of dailies to the first workprint.

In the matter of release prints, there are two choices available to the producer, and the choice he makes will partially determine the other laboratory services. His prints may be made directly from the edited camera negative or from a dupe negative. The printing choice may involve both 35mm and 16mm, the latter being provided by reduction printing from the edited camera negative, or by contact printing from a 16mm dupe negative—with the dupe reduction printed from a 35mm master positive.

The factors involved in making the choice between printing from camera negative or dupe negative include print image quality and price and size of the print order—the latter considered in relation to the life expectancy of the printing negative.

Here the question naturally arises: "Just what is the life expectancy of an edited 35mm negative?"

Each passage of the negative through the printer *may* result in scratching or other damage to the film. This can happen even where the laboratory has the most modern machinery plus the latest mechanical and electronic safeguards, and strict standards governing the handling of customers' film in the print. A continuous movement printer is gentler with film than a step-printer, which is the type printer used in reduction-printing. But any printing operation has some element of hazard.

In the production of 35mm release prints on a continuous printer, the number of acceptable quality prints made from a 35mm edited camera negative has run up over six hundred, but the normal run of quality prints is closer to two hundred. In making individual 16mm reduction prints, the average is around one hunderd quality prints, although there are instances where much higher totals have been achieved.

The price advantage is with the 16mm contact print from a 16mm dupe negative reduction-printed from the 35mm master positive. This is because the 16mm dupe negative is fully timed, has all the necessary effects incorporated—making it possible

to produce the required release prints on a continuous printer without the need for scene-to-scene light changes.

There is a price advantage also where 35mm release prints are made from a 35mm dupe negative that is fully timed and requires no light changes in the printing operation. Obviously, the less work the laboratory must do in making each release print, and the faster a printing machine can be safely operated, the lower the price of the printed product to the customer.

Regarding the matter of quality, the fewer the intermediate steps the better the product—as a rule. As one might reasonably expect, 35mm prints from edited 35mm camera negative are more pleasing visually than prints made from a dupe negative. One can observe this quality in screened prints where it is possible to compare optical effects portions with other footage in the same picture.

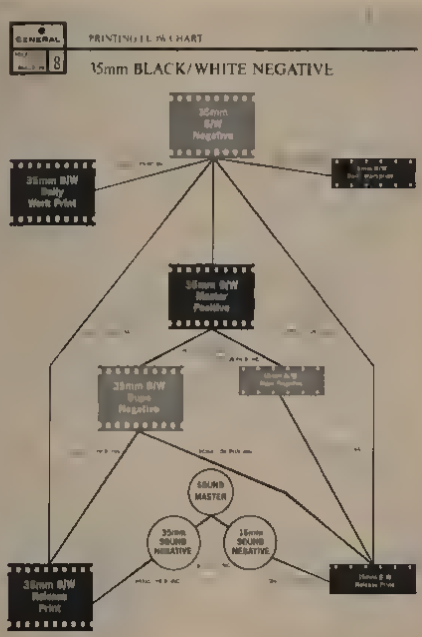
Similarly, the 16mm reduction print may be expected to have better definition, contrast, and overall tonal quality than the 16mm contact print made from a reduction-printed negative. Nevertheless, the 16mm contact prints from reduction negatives we see today are, on the average, very good—especially when the 16mm reduction negative is made on 35/32mm stock and the prints are also made on 35/32mm positive, then slit to 16mm widths. This dual-printing method combined with today's improved film stocks, modern printing methods, and close control of processing procedures results in 16mm contact prints very close in quality to the reduction print—and without involving the normal hazards of reduction printing.

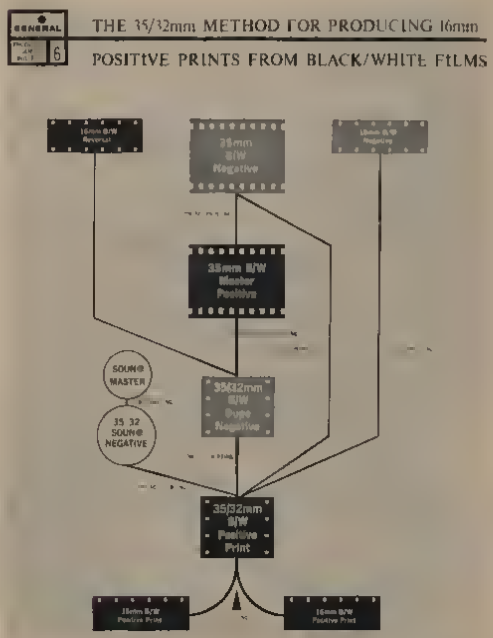
In actual practice, most small orders are produced from the 35mm camera negative—both 35mm contact and 16mm reduction. Most 35mm release print orders—up to around 200 prints—are normally made from the camera negative. But larger orders in 35mm, and 16mm release orders of 100 to 200 prints, will usually be produced from a dupe negative. In either case, the producer will require certain 35mm fine grain positive and 35mm dupe negative materials.

In printing from an edited single-roll camera negative, all dissolves and other special visual effects are provided by making optical dupe negative sections of these effects which are cut into the main body of the camera negative. This process requires the making of (1) fine grain 35mm positives of the scenes involved in the effects, and (2) the projection (or optical) printing of the 35mm dupe negative sections with the effects incorporated.

Continued on Page 54

FLOW CHARTS below show progressive steps in the production of release prints from 35mm B&W negative also the 35/32mm method for producing 16mm positive prints from B&W films. Charts are reproduced from series of Producer Service Bulletin issued by General Film Laboratories, Hollywood







CINEMATOGRAPHER Marvin Farkas (left) and assistant setting up Arriflex 16 camera for a high shot during filming of "Bozo's Adventures in Asia" for WHDH TV

Filming In Asia For American TV

New adventures of Bozo the clown filmed in 16mm color in Far East locales.

By CLIFFORD V. HARRINGTON

UNICEF photos by J. Ling



SUBJECT OF the TV film series—Bozo the Clown—played by Frank Avruch, mounts an elephant in India. Meantime the camera recorded antics for the American TV film series. Filming was in 16mm color

THE DECISION of TV station WHDH of Boston, Mass., to send its local clown "Bozo" on a goodwill tour of Asia in cooperation with UNICEF, provided Marvin Farkas, Hong Kong-based cinematographer, with a hectic filming assignment that took him to six countries.

In the course of the two-month odyssey, the TV film unit shot enough footage for ten half-hour shows for WHDH's series entitled "Bozo's Adventures in Asia," plus a series of personality interviews. Farkas, his assistant, Y. B. Tang, Frank Avruch (who plays Bozo in the local Boston area) and Virginia Bartlett, producer and director, not only visited many major Far East cities, but also traveled extensively in the rural areas where UNICEF does much of its work.

To film the "Bozo" segments Farkas used a 16mm Arriflex and a Bell & Howell Filmo. For the sound interviews an Auricon camera converted to accommodate a 400-ft. magazine and equipped with a zoom lens was used.

Farkas and his crew filmed in Hong Kong, the Philippines, Taiwan, Thailand, Burma, India and Pakistan. Much of the shooting was done outdoors to take advantage of local scenic values of the countries and to avoid the necessity for extensive indoor lighting. Also, sequences were planned with a bit of plot whenever possible to provide more interest and tighter continuity.

One such vignette shot in the exotic Gardens of Shalimar, in Lahore, Pakistan, shows a little boy, sad and alone. Then Bozo in his incongruous costume appears and cheers him up. Other children gather to watch. For the final cut Bozo raises his hands and by prior arrangement the beautiful fountains in the background spout up.

The photography kept cameraman Farkas on his toes. The UNICEF organization had planned a crowded schedule for the crew, so Farkas had to draw heavily on his newsreel experience in setting up and photographing quickly.

One of the important tasks was to get unobtrusive shots of the youngsters reacting to the American clown, Bozo. But in one case the crew got tears of fright instead of howls of laughter. When Bozo was announced and came bounding into the room, the native children were thunderstruck by his red wig and shiny red nose. Never in their wildest dreams had they imagined such a character.

"Even we were surprised," Farkas said. "Bozo approached one child, who seemed not as frightened

as the rest, and gained his confidence, and similarly, he won the others over and the filming continued."

The dark skins of the local people contrasted sharply with the white or bright colors of their clothing, which presented a problem of determining the best exposure to use. In such instances he compromised on the lens setting and trusted the latitude of the Ektachrome Commercial film to provide the correct light balance.

Farkas and his crew experienced many unusual weather conditions during the trip. In India, fortunately, it was not yet the monsoon season and there was bright sunshine every day.

"The strangest thing we encountered was unusual sand conditions in Pakistan," Farkas said. "It was as fine as powder and it hung over the area in a cloud. We didn't take our cameras out of their cases until the sand blew away, which was several days after we arrived."

Continued on Page 53

USING 16mm ARRIFLEX and Ektachrome Commercial film, cameraman Farkas photographs colorful detail of oriental temple in Rangoon, Burma, as part of his WHDH TV assignment



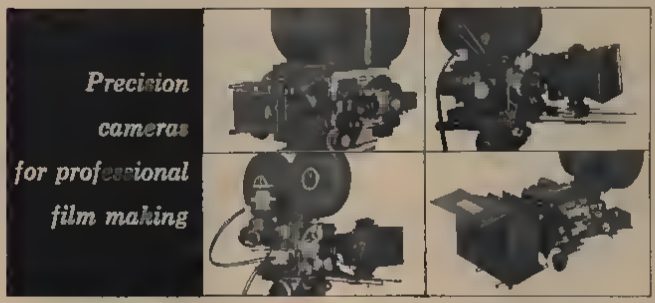
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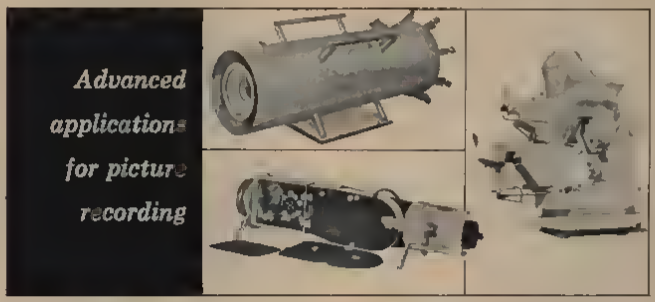
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ZOOM LENS TECHNIQUE

Why zoom shots and tracking shots differ in perspective.

By ARTHUR GRAHAM, BKS*



WITH HIS ZOOM EQUIPPED Bolex mounted on the bed of his station wagon, cinematographer Roy Zeper has the dual advantage of both the zoom and tracking shot depending on the demands of the script

THE IDEA OF COMBINING different focal lengths within one lens goes back many years in the history of photography, and lenses were in fact designed so that by using all the components one focal length was obtained, and then with certain components detached this focal length would be increased, although with a smaller f/number. This uncombined lens frequently suffered from optical defects. In the early nineteen-thirties the idea was taken a step further in lenses intended for motion picture production, which allowed the focal length to be changed not by the removal of any components but by the movement of the parts of the lens in relation to one another. They still had the disadvantage however of the necessity of using a small aperture if a "zoom" was made, in order to obtain acceptable quality, "zoom" being the word used to describe the action of changing continuously from one focal length to another. The film industry did not show a great deal of interest in these lenses, possibly because of the price (which was high) and also because of the exposure difficulties inherent in their use; and as a result, no further work was undertaken along these lines until after World War II. Lenses were then made in which the widest aperture could be used throughout all the varying focal lengths. Television companies quickly realized that this new piece of equipment was ideally suited for a large amount of the work they had to undertake, if indeed their demands had not in fact stimulated its production. And from there its use has spread into all branches of film making.

The effect of altering the focal length of a lens while filming—in other words "zooming"—is to change the angle of view. If the lens is set at a wide angle and is then changed to a narrow angle, the result is a concentration on some detail of the original long shot. Reversing the process and going from a narrow angle to a wider one gives the effect of placing a detail seen at the start into a wider setting.

The usual method employed in film making to achieve these two effects has been the tracking shot. The camera is mounted on a truck—known as a "dolly"—and is moved backwards and forwards as required in relation to the objects being filmed. It may also be mounted on a crane in which case the movement of the camera can be vertical as

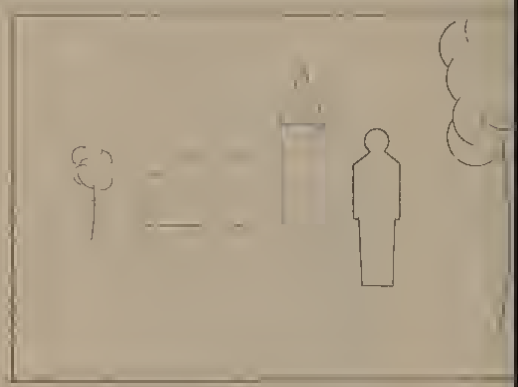


FIG 1—Long shot—showing perspective before tracking or zooming

*Reprinted by permission from Vol 41, No 3 of *British Kinematography*. Author Graham is Films Officer for Bowater Paper Corporation Ltd., London

well as horizontal. Tracking shots are mainly used in a production either for the purposes already mentioned, or in order to maintain a fairly constant spatial relationship with a moving object. In other words, moving along with the object being filmed.

Does the zoom lens replace normal tracking shots? As can be seen from the above, it can only act as a substitute for those shots where the camera is moving towards or away from the object. It cannot give the second type of tracking shot—moving with the subject—except under special circumstances of positioning. And although it can be used to approach or draw away, the resulting picture is different from that obtained by a tracking camera. The reason for this lies in the difference of perspective in the two shots. With a "zoom" taking the place of a track, the camera remains in a fixed position and consequently the perspective of the scene remains unchanged irrespective of the apparent move. The relationship between the object and the foreground and background is unaltered. The only change is in the size of the object on the screen: it becomes bigger or smaller according to which way the zoom is made. With a tracking camera, this is not the case. Not only does the size of the subject change, but the perspective of the scene does also. Dramatically, or rather artistically, this difference between the two visual results is very important.

With a tracking shot, the audience will feel that they are part of the scene, moving towards or away from the object as the camera does. This feeling of being "inside," so-to-speak, is due to the changing perspective, which resembles that which would be experienced in normal life as one moved in a similar manner. In a zoom shot, on the other hand, those in the audience remain outside of the scene, in the sense that they cannot feel themselves part of it. If the scene begins as a long shot and then narrows down to a closeup, the effect is not that the audience has gone into the scene and approached the subject, but rather that the audience has remained where it was and that a magnifying glass has been used to examine some detail in the long shot. The perspective in this case does not change, only the size of the object in relation to the screen size. However, there is sometimes an apparent perspective change with a zoom, especially with a zoom-in. It is most marked on the occasions when the scene is zoomed from a long shot to a closeup not of one object by itself, but to two or more standing in different planes relative to one another. When this happens, it appears that the distance between the various objects is foreshortened, in other words, they seem closer together.

This alteration in appearance is similar to the effect seen when very long focus lenses are used on cricket matches; though it is of, course, far less marked as the longest focal length of a normal zoom lens is still far less than that of the lenses used for such a purpose. The two sets of stumps seem to be very close to each other, and yet when the batsman runs from one set to the other, he resembles the Red Queen—he runs like mad and appears to get nowhere. This effect is, of course, due to the magnification of the image in relation to the position of the audience relative to the screen. A long shot on the screen seems to look normal to people seated in the usual viewing position, but when a section of the long shot is enlarged to the full-screen size—which is what happens in a room, or with very long focus lenses—then the usual viewing position is no longer correct for the degree of magnification, and in order to restore the perspective to normal the audience would need to move further away from the screen; the increased distance being relative to the increased magnification. The illusion of perspective change is further increased by the elimination of the objects in the

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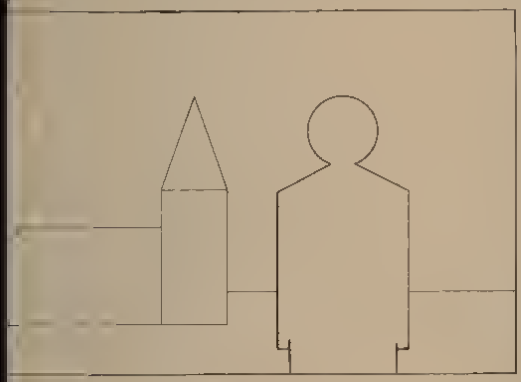


FIG. 2—Mid shot—perspective after tracking

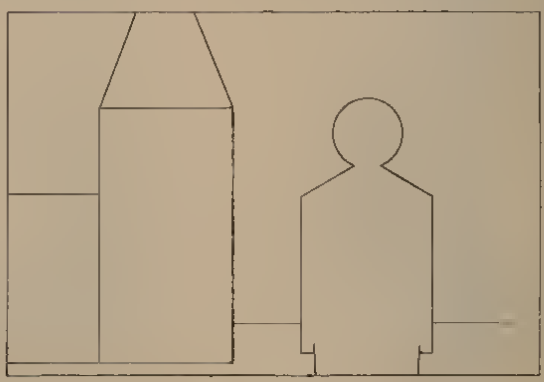
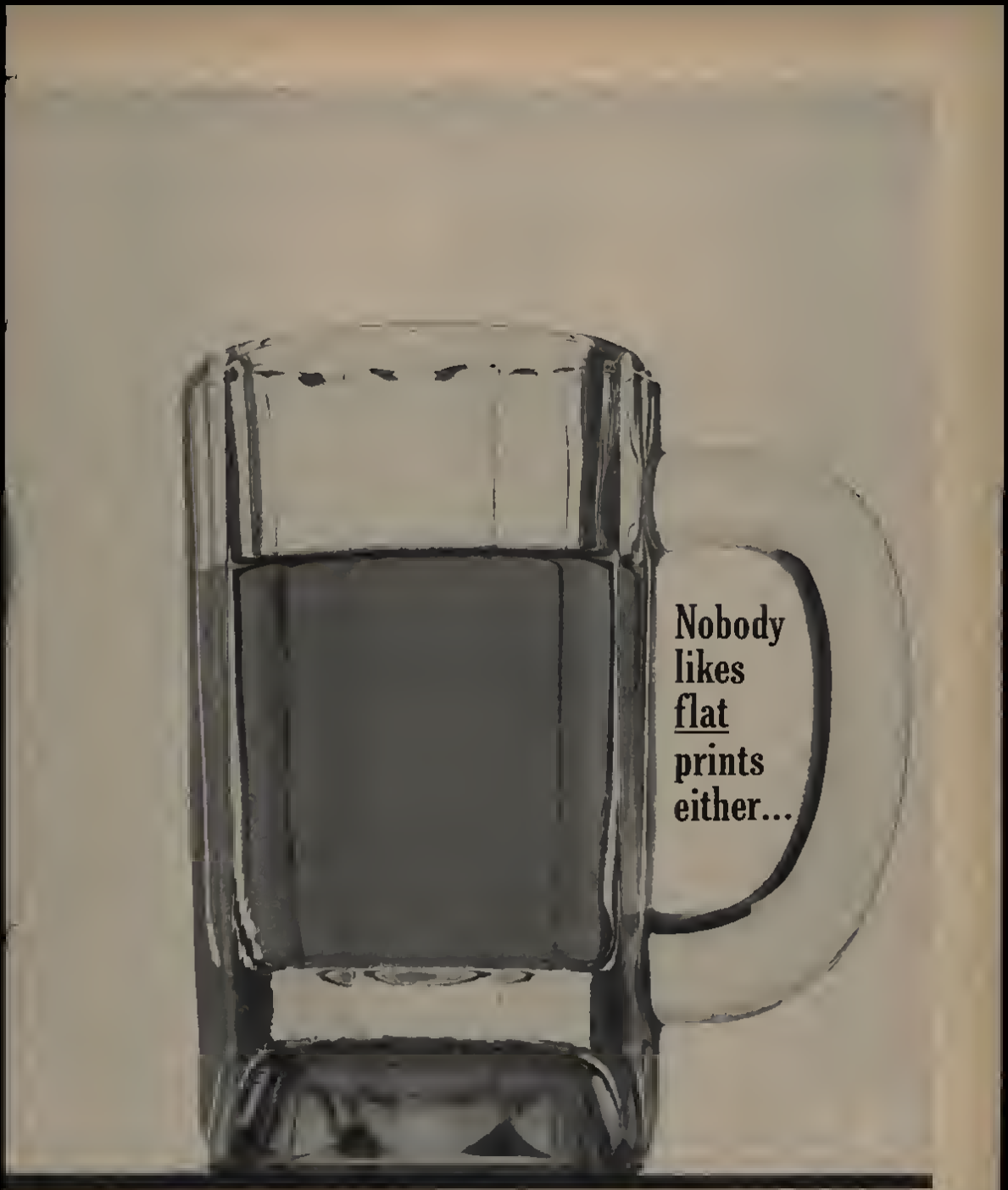


FIG. 3—Mid-shot—persepective after zooming

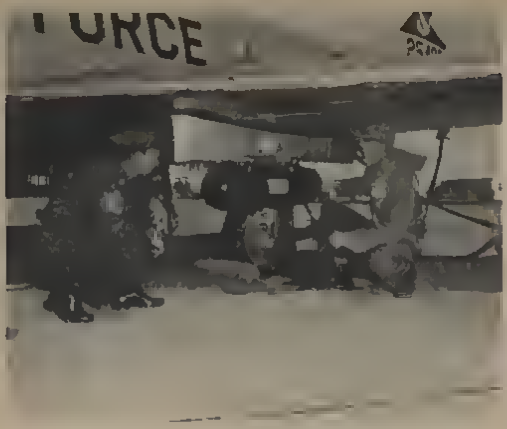


FACT IS a crisp, sparkling negative must have top-quality prints. Otherwise, it can't do its job, and your message falls flat on its face, wasting production time and money—station time, too, if your film's on TV. Moral: Go Eastman all the way—negative and print-stock. And in the case of questions—production, processing, projection—always get in touch with Eastman Technical Service.

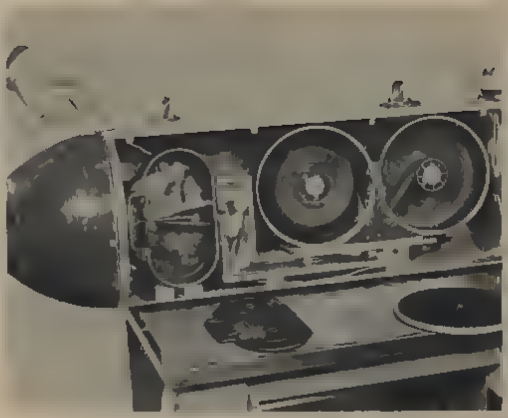


For further information, please write or phone: Motion Picture Film Department, **EASTMAN KODAK COMPANY, Rochester 4, N. Y.** Or—for the purchase of film: **W. J. German, Inc.** Agents for the sale and distribution of Eastman Professional Film for Motion Pictures and TV, Fort Lee, N. J., Chicago, Ill., Hollywood, Calif.

EASTMAN FILM



INSTALLATION OF modified T1A camera wing mount on bomb rack of F-86F aircraft. Mount developed by AFCS personnel, encloses Bell & Howell Eyemo camera for photographing air to ground and ground to air combat action



THE T1A camera wing mount showing position of the Eyemo camera and the L shaped channel through which the film travels to and from the 400-foot magazine in tandem position

Fitting The Camera To The Job

Adapting cameras and related equipment to unique photographic assignments is all in the day's work for cameramen of the APCS.

By HERB A LIGHTMAN

ONE OF THE MOST STIMULATING challenges to the U.S. Air Photographic and Charting Service, in providing world-wide motion picture and still photographic coverage of Air Force activities, is the almost constant demand for development of special camera equipment and the adaptation of standard equipment to meet its highly individualized requirements. Sometimes this merely calls for an imaginative way of utilizing existing units without mechanical modification. In other cases it requires designing and construction of the original equipment to serve a unique purpose. In most situations, however, a "yesterday" deadline adds zest to the whole procedure and calls into play a combination of "Yankee Ingenuity" and precise engineering skill.

An account of a typical stop-the-presses assignment will serve to illustrate how APCS technicians swing immediately into action in adapting standard motion picture equipment to a highly specialized situation. Recently APCS headquarters at Orlando Air Force Base received a request for a camera crew to film a two-week Counter Insurgency seminar at the Air University at Maxwell Air Force Base, Alabama. Hal Albert, Asst. Deputy Chief of Staff-Photographic at Orlando immediately flew to the location to check out the situation. The assignment called for filming forty-six 45-minute lectures during the seminar—as many as eight in one day. What made the situation more challenging was the fact filming had to be done without distracting the audience's attention from the continuity of the program itself.

Albert decided the best way to accomplish this was to utilize four 1200-foot Super-Pro Auricon single-system sound cameras concealed in two draped booths on either side of the auditorium. He estimated that 170,000 feet of 16mm single-perforation Tri-X Pan film in 1200 foot rolls would be needed. Locating this amount of such film stock

in a hurry was a project in itself. An urgent call was sent out to all APCS units which used the material as well as to Eastman Kodak Company. A barely sufficient amount of the stock was scraped together just in time to start the filming operation.

It was planned to pick up the sound from the microphone on the speaker's stand and to use the single-system sound track recorded on the camera film merely as a cue track. A separate "clean" track would be recorded simultaneously on magnetic tape and used in the actual dubbing. The cameras were to operate in banks of two, recording from two different angles. Two cameras would shoot at a time, while the other two were reloaded for uninterrupted operation. As soon as a pair of cameras were rolling, the sound mixer would record a "pip" to synchronize the picture films with the magnetic track. Near the end of a roll, when the other two cameras started up to provide overlap, he would record another sync signal to key all five sound tracks together.

In the actual filming operation, whenever occasional camera trouble developed, the plan had to be modified somewhat, but two cameras were kept rolling at all times. A wide bank of light units was set up along with adequate controls so that if one set of lights burned out another set could be switched on immediately. A two-way communication system was installed which enabled the director at a central location to maintain voice contact with the cameramen in the two camera booths and thus cue operation of the cameras and the selection of subject matter. A detailed cue sheet was made for later reference by the editor so that he would know which cameras were shooting at what times.

An additional problem arose out of the fact that the Seminar speakers used visual aids projected on a screen which did not show up clearly on the motion picture film. Still camermen were then assigned to stand by with cue sheets having notations indicating when a speaker would use a certain visual aid, what it was (slide, stereopticon, etc.), plus a brief description of the subject matter, and indicating the length of time it would remain on the screen during the speech. Then, as soon as a particular lecture was over, the still men were given the visual aids. They rushed them to the base photographic laboratory and copied them in color slightly larger than 1-to-1. Later, at the Orlando laboratory, these color stills were mounted on an Oxberry optical printer and rephotographed on 16mm color film. This footage was then turned over to the editor who spliced it into the lecture footage as cutaways. Although the speakers were photographed in black-and-white and the visual aids in color (for greater intelligibility), the two films blended together well in the final release prints, which were made on color stock.

One of APCS's most functional developments of equipment for filming air-to-ground and air-to-air combat action resulted from modifying a T-1 bomb rack to hold an Eyemo camera equipped with 400-foot magazine. Because of space limitations the magazine could not be directly affixed to the camera in the conventional manner but had to be mounted horizontally some distance behind it, with the film travel mechanism re-designed to feed the raw stock through an L-shaped track to the gate. The camera movement was driven by a 24-volt motor activated by the plane's electrical system. Another 24-volt motor operated the take-up of the magazine.

When the original prototype of this wing-mount proved successful, several similar units were constructed of $\frac{1}{8}$-inch aluminum rolled to fit $10\frac{1}{2}$-inch diameter dividing plates. A tail cone was affixed to the rear of the cylinder and two interchangeable nose cones were designed—one to accommodate a 2-inch lens, the other a 6-inch lens. The resultant T-1A Camera Wing mount has a small access door on one side for changing magazines and another on the opposite side to permit inspection of the take-up motor.

This compact camera housing is designed to fit any jet fighter which normally includes a bomb rack, and it mounts directly to the pylon of the aircraft.

Continued on Page 48



LOWERING CAMERA into the "Monster"—heavy metal protective housing—in preparation for filming series of nuclear tests on Eniwetok Island. Housing enabled camera to record tests without danger to equipment. Unique built-in electronic device triggered camera into action following initial flash of bomb.



WHETHER IT IS an in-plant production or a film produced for a client by a commercial producer, the time required for processing of the film and making prints is an important factor to be considered in the initial production planning

Planning--Key To Better, More Profitable Commercial Films

Where thorough planning precedes actual start of production, the director and cinematographer will have a complete, thoroughly-detailed script enabling shooting to proceed in an orderly and economical manner.

By FREDERICK FOSTER

THE PROFIT ON an industrial or commercial film production often depends on the economies that can be effected before shooting starts. Of paramount importance to anyone producing commercial films is the ability to carefully plan each production before it goes before the cameras. Non-theatrical films, if they are to return a profit and at the same time successfully fill the need for which they were produced, should be carefully planned, step by step.

By thoroughly visualizing a production in advance, the pattern of the finished film is established. At the same time, economies are effected through planning the shooting of the scenes in the shortest possible time and without need for retracing steps.

The planning of a commercial or industrial film should begin with the very first conference between producer and client. At this time there should be a clear statement and understanding of the problem to be considered. Certain basic decisions must be made before even the most rudimentary script can be written, namely: the amount of money the client will allot for the production, and how much time will be available to produce the film. Some clients are prone to underestimate both of these factors with the result that serious problems often arise before the production is completed.

But once these two matters are settled the producer will know just how much production value he can include in his script and can advise his writer accordingly—or if he writes the script, be able to proceed accordingly.

In order to establish a relationship between budget and production value, it is necessary to review the elements involved. The first factor to be considered is whether the picture is to be black-and-white or color. A color production is more effective than black-and-white but it is also more costly in terms of film stock and the increased amount of light necessary for interiors.

The next factor that should be considered is the sound: whether the picture is to be lip-sync with dialogue, sound effects and music, or simply carry narration. Narrated sound with musical background is usually easy to negotiate, since there are a number of film service laboratories that provide complete music and recording service for the small film producer not having his own recording facilities. Lip-sync sound, in which the speech of persons appearing in the picture is recorded simultane-



CAREFULLY PLANNED, the production gets under way on time and proceeds smoothly and on schedule (Ray Zeper Photo)

ously with the filming is a more costly step because of the additional equipment and personnel required to execute it. The advent of magnetic sound and more recently, the compact, transistorized and battery-operated portable recorders, now makes it possible for 16mm film producers to do their own recording, thereby modifying the cost of this phase of production.

Whether a film will require many interior set-ups or can be staged mainly out-of-doors will have considerable influence on both the budget and the shooting schedule. Shooting indoors can be expensive for the producer who must rent generators and lighting equipment. The extra time involved in transporting equipment to locations, installing power lines and setting up lights amounts to a very substantial item. Where interiors are small or where indoor action can be staged indoors in small areas, portable, lightweight lighting equipment such as Color-Tran is ideal and adequate. It is compact and not too expensive to buy or operate, may be used for most all set lighting needs.

The small producer today has the advantage of many sources where lighting, camera and grip equipment may be rented. (See Equipment Rental Directory in the December issue.)

In setting up a shooting schedule for a picture it will be found advantageous to plan for earliest shooting those scenes which require the least staging—such as exteriors, natural location interiors, etc. In this way it is possible to get a substantial portion of the production "in the can" at an early date; and your crew will be kept busy while the elements of more complicated scenes are being assembled.

One of the first steps necessary in planning and setting up the shooting schedule is to go through the script very carefully and list the locations, props and personnel

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A.S.C. RECOMMENDATION NO. 11

Society's Research and Educational Committee proposes dimensions for Safe Title Area for wide screen and anamorphic theatrical release prints with TV release potentials.

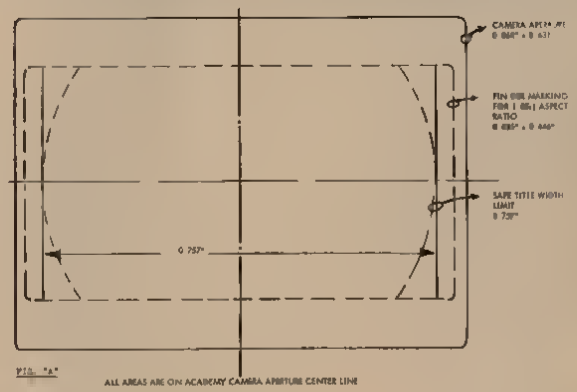


FIG. "A"

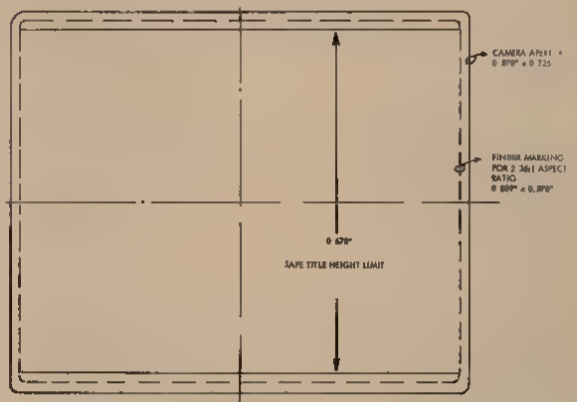


FIG. "B"

A.S.C. RECOMMENDATION #11

SAFE TITLE AREA FOR WIDE SCREEN (1.85:1) AND ANAMORPHIC (2.35:1) THEATRICAL RELEASE PRINTS

1. SCOPE

1.1 Data for marking camera ground glasses or title boards for safe title areas for theatrical pictures in 1.85:1 and 2.35:1 aspect ratios in view of future display and readability on TV channels are specified.

1.2 Recommendation is based on previous studies pertaining to TV release, outlined in ASC Recommendation #4, "Safe Action and Safe Title Areas for 35mm Films for TV Release", and especially ASC Recommendation #8, "Release Methods Of Wide Screen (Flat) and Anamorphic (Squeezed) Theatrical Pictures on TV".

2. DIMENSIONS

A. Wide Screen (Flat) Release Prints

2.1 The main title and main credits on 1.85:1 theatrical prints should be within a width limit of 0.757" max. as per diagram "A", having either straight or curved side lines.

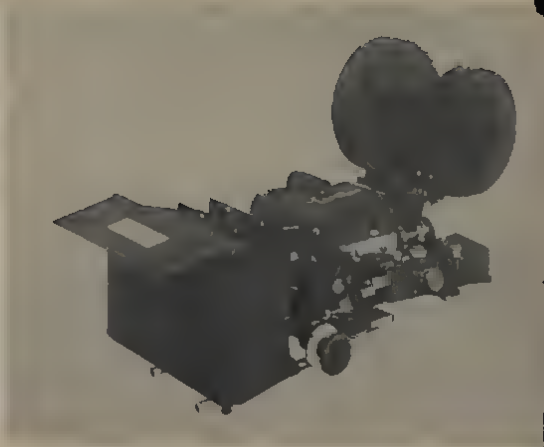
2.2 Since height of titles composed for 1.85:1 theatrical aspect ratio is 0.446" max. they will be safely reproduced within the 0.565" safe action area height in TV transmission as per ASC Recommendations #4 and #8.

2.3 The camera aperture for titles as per 2.1 shall be 0.868" by 0.631" (see ASC Rec. #9) with title cards and/or backgrounds covering this entire area to avoid wide-frame line prints and consequent black bars across top and bottom of home receivers as outlined in ASC Rec-

Continued on Page 49



THE MITCHELL Mark II Reflex camera with 400 foot inverted magazine dramatically illustrates the flexibility of the camera's design



THE MARK II Reflex complete with Universal matte box, follow focus attachment studio finder sync motor and 1000-ft magazine

The Mitchell Mark II Reflex

This new, compact lightweight 35mm camera has all of the professionally required Mitchell features plus an advanced reflex finder system.

By JOSEPH HENRY

WHEN MITCHELL CAMERA CORPORATION introduced its first 35mm reflex camera two years ago, it wisely limited production to a few cameras and placed them in the hands of professional cinematographers qualified to render objective reports on the camera's usefulness, performance, and on what it lacked, if anything, to make it a practical tool for the studio cinematographer.

As a result of these unpublicized tests and of the critical reports and helpful suggestions that resulted, Mitchell completely re-engineered its original concept for the reflex and the results are embodied in the new Mitchell Mark II 35mm Studio Reflex Camera.

The Mark II's design concept, influenced by veteran directors of photography in the industry, called for a lightweight camera of advanced design having the capabilities of the BNC, NC, and Hi-speed Mitchells; a superior reflex viewfinder, and capability for hand held shooting. More directly, the design concept, as viewed by Mitchell's engineers, placed emphasis on the following salient features:

A dual register-pin movement capable of speeds up to 128 frames per second.

A dissolving shutter, variable while the camera is in operation.

Provision for interchangeable camera motors of all types.

Interchangeable magazines having film capacity up to 1000 feet that do not require separate take-up motors.

Sturdy, accurate and reliable lens mounts.

Ground glass interchangeability combined with special effects matte slot.

Positive precision viewing system with variable magnification and built-in contrast viewing filters.

Camera Showcased at the ASC

Although the Mark II Reflex was given its initial public showing several months ago, its Hollywood premiere took place recently when it was demonstrated before members of the American Society of Cinematographers at the Society's monthly meeting November 26th.

The versatility of the camera, which incidentally marks a new trend in studio camera design, is exemplified in two photos above, which show the camera in streamlined trim for hand-held operation (left) and in full "battle dress" for conventional studio use (right). The salient feature here is the

dual film magazine capability which provides for a compact, lightweight inverted magazine that mounts back and below the camera body and at the same time provides a rubber-cushioned indenture between the film chambers that serves as a shoulder-rest for the camera when operated hand-held.

Other standout features noted during the A.S.C. demonstration will be described briefly:

The Mark II's full-aperture 128 f.p.s. movement is keyed so that it can be removed and replaced without having to be re-timed.

The camera's reflex focus tube viewfinder produces a larger than full aperture field, and so brilliant that the camera lens can be stopped down to a point below which a normal density negative exposure can be made—yet produce a bright viewing-image with which to compose.

The shutter, of advanced design, employs a ground and polished stainless steel rotating mirror to complement the camera's reflex viewing system. The camera shutter is of focal plane, variable disc design and a salient aim in its design was to provide a shutter that would assure optimum exposure consistently over the entire film aperture.

Matte slot in the ground glass holder conveniently provides for inserting a frame of film therein when required for match-dissolve work or other special effects made in the camera. Because of the camera's reflex viewing feature, the matte can be viewed continuously when making such shots. Moreover, it makes possible panning and tilting of the camera to accurately locate the image or subject matter being filmed, greatly simplifying the photography of effects which subsequently are to be combined optically with other photography.

The optics of the reflex viewfinder are a combination of a Bausch & Lomb f/2.8 lens for variable magnification and a 65mm exit pupil eyepiece, which does not "black out" or fog over and covers a larger than full aperture field.

Perhaps the most interesting innovation is the sync-pulse generator which is an integral part of the Mark II Reflex, enabling the camera to work compatibly with the new miniaturized battery-operated tape recorders, such as Perfectone, Nagra, and the Stellavox in the production of synchronized sound films.

The DC motors available for the Mark II are all governor-controlled. The Hi-Speed motor provides a range of frame-per-second speeds from 24 to 128. Also, it is possible, with this motor, to start shooting at normal camera speed, then increase the speed for startling effects.

An optional accessory is the streamlined blimp designed to facilitate the utmost in camera convenience in sound stage use. Salient feature is provision for continuation of the camera's reflex finder when

Continued on Page 52



MARK II dual pilot pin registered movement shown with gelatin filter holder inserted in the removable aperture plate (left). With a speed capability of up to 128 fps, this movement is ideal for animation and background plate photography



THE MARK II BLIMP is lightweight, streamlined, and designed for unhampered operation of camera. It provides for use of the camera's through the lens reflex viewer and utilizes the BNC type captive cam studio finder



PICTURED HERE ARE all the various components, accessories, etc. by which the Mark II Reflex may be converted from a lightweight hand held camera to a studio type camera having all the facilities of a Mitchell BNC. The basic camera head is at lower right

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FILMING "SAVAGE SAM"

Continued from Page 23

that usually obscures the landscape only a few miles away.

An exterior film photographed in color on location, without the control of elements possible on the sound stage, always presents certain technical challenges, and "Savage Sam" was no exception. Shooting was begun early this past summer while the California hills were still lush green from recent rains. As filming progressed into autumn, the foliage turned brown and it was necessary to spray vast acreages of landscape with green water-soluble paint so that later scenes would match those shot previously.

Another problem characteristic of exterior color filming arose out of the fact that the sun, "Nature's Own Key light," changed its position progressively throughout the day. The company would begin shooting a sequence in morning with strong backlight prevailing. By mid-afternoon lighting in the area had changed to flat front light. Matching the lighting on scenes, shot

Continued on Page 42

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Inspect every foot before it leaves your plant with the HFC High Speed Heavy Duty Inspection Projectors -- 16mm & 35mm models now available.

NEW

The projector is a converted front shutter Simplex with a two pin intermittent. 16mm or 35/32 film runs at a speed of 144 ft per minute while 35mm film runs at a speed of 165 ft. per minute.

1. A variac controls the light intensity
2. A 500 watt lamp is used for 16mm and a 1,000 watt for 35mm (a blower is used to cool the lamphouse).
3. A 2½ inch projection lens is furnished with each unit.
4. A start-stop lever controls the power to the lamp and motor.
5. The magazine and take up core takes up to 3,000 ft of film
6. Upper guide rollers are made to handle the film from either direction of the feed reel.
7. A free wheeling take off flange is provided in the magazine
8. A lamp near the takeup reel permits hand inspection of the film prior to takeup

NOUVEAU

Le projecteur contient un obturateur Simplex anterieur transformé avec deux clavettes intermittent. Les films de 16mm ou 35/32 tournent avec une vitesse de 144 pieds à la minute, tandis que les films de 35mm tournent avec une vitesse de 165 pieds a la minute

1. Le regulateur de voltage d'intensité d'eclairage
2. La lampe de 500 watt est nécessaire pour les films de 16mm, et de 1000 watt, pour les films de 35mm (un ventilateur est mise pour rafreichir la chambre de la lampe).
3. L'objectif de 2½ est instalé
4. La menette de mise en marche et d'arret controle en meme temps la lampe et le moteur
5. La boite de films avec noyau peut contenir 3000 pieds du films.
6. La roue supérieure est construite de manière de recevoir le film dans les deux directions, nourrie par la bobine centrale.
7. Une roue est instalée pour libérer rapidement le film de la boite
8. La lampe se trouve pres de la bobine recepteuse, et donne toute facilité pour inspecter le film a main dans le projecteur.



NUOVO

Questi proiettori sono Simplex transformeti, otturatore al fronte, meccanismo di scetto di due punte La velocitá di proiezione in 16 o 35/32mm e di 144 piedi per minuto, e in 35mm, di 165 piadi per minuto.

1. Controllo menuale della luminositá dalle lampade.
2. Lampede di 500 watt per 16mm e di 1000 watt per 35mm.
3. Obbiettivo di proiezione di 2½".
4. Maniglia per controllo di motore e lempada di proiezione.
5. La cassetta porta pellicola puo contenere 3000 piadi.
6. I rulli superiori di guida sono construiti per operare con film provenante di ambi lati della bobina svolgitrice
7. Disco con montature sporgente nel magazzino.
8. Una lampadine illumine le bobine evvolgitrice, permettando l'ispezione manuale del film prima che si avvolga nel proiettore.

NUEVO

Esta méquina es un proyector simplex convertido, obturador al frente y movimianto intermitenta a doble grifa. Pare 16mm o 35/32mm, la velocidad fija de proyección es de 144 pies por minuto, pere 35mm es de 165 pies por minuto.

1. Un reostato controla la intensidad de la lampara de proyección.
2. Para 16mm se usa una lampara de 500 watt, y una de 1000 watt para 35mm (un chorro de aire ventila las lámperes en ambos casos).
3. Cada unidad está provista da un lente de proyección de 2 pulgedes y media.
4. Una palanca de control opere el motor y la lampara simultáneamente.
5. Capacidad de proyección- rollos de hasta 3000'.
6. Los rodillos de guia superiores operan con la pellcula en embas direcciones.
7. La tapa de la bobina de carga es desenroscable.
8. Una lampara ubicada junto a la bobina da toma permite la inspección manual de la pelicula antes que se rebobine en la bobina superior del proyector.

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FILMING "SAVAGE SAM"

Continued from Page 40

out of sequence. under such conditions. is an operation demanding great skill and patience Cinematographer Cole man avers that never before had he been confronted with so many backlighted locations on a single color feature.

Judicious use of booster lights preserved the feeling of "outdoors" without shadow areas going black Like most Hollywood studio cinematog raphers, Coleman prefers arc lamps to reflectors for booster or fill light whenever available. Arcs are easier on actors' eyes, he says, and produce a stronger and more even light that gives truer pictorial quality than reflectors Also, arcs do not depend upon sun light for their effectiveness. In shooting exterior long shots Coleman sometimes mixes the two, using arcs to light the actors and light from the reflectors to fill in the background.

"Savage Sam" includes several se quences in which the moving camera followed horsemen speaking dialogue as they rode Since most of this action was backlighted by natural daylight. the problem was keeping the actors consistently illuminated with fill light during the shots without permitting noise from the power generators drown ing out the dialogue. Reflectors mounted on the camera car proved unsatisfac tory because they could not be held steady enough over rough terrain Booster arcs, therefore, were the only answer. This posed the problem of how to power the lamps without using the noisy generators Surprising enough the answer came from Disney land

At this fabulous playground not far from Los Angeles special heavy-duty 12-volt wet-cell batteries are used to operate monorail cars and miniature automobiles It was found that six of these batteries in series would provide 72 volts and 250 amps of electricity sufficient to operate one arc lamp for a short period of time Thus a double bank of the batteries was installed to activate the two arc lamps mounted on the camera car, making possible the three to four minutes of booster light necessary to film average running shot. The batteries were re-charged over night to ready them for the next day's shooting.

Because most of the action in the picture encompassed vast areas of landscape, and also because the cast featured small children who were not permitted to work beyond a certain hour each day. most night sequences were photographed day for night.

Coleman claims no special magic in this photographic technique It's simply careful application of the day-for-night shooting techniques which have become standard in the industry, he says Coleman underexposes day-for-night scenes 1½ to 2 stops, depending upon the key of the natural light When photographing actors in day-for-night close shots, however he overlights their faces by twice the normal amount so that, even though the background is underexposed. faces are clearly detailed. The key-light comes from one side in a fairly high contrast ratio to the fill light and fill is carefully controlled to indicate shadow detail without washing it out Coleman uses no blue filters in shooting such "night" shots, but works closely with the laboratory when the film is developed and printed to make sure that just the right amount of "cold" tone is added in the printing

The most challenging sequence of this type in the picture shows Indians around a campfire with the children they have kidnaped The scenes in cluding the fire had to be shot night-for-night to get a true fire effect. while those of the children were shot day for-night Here Coleman was careful to avoid sky backgrounds in these day-for night scenes. and photographed the children against a hillside background The resultant shots filmed under com pletely opposite conditions. intercut perfectly in the edited sequence

One of the most spectacular sequences in the film involves a stampede of more than 1,000 wild horses charging directly toward the cameras. The action had to be played very close to the cameras to capture the full impact of the thundering herd. even though cameras and often their operators have been known to be trampled during such shooting Moreover these cameras could not be operated by remote con trol due to the necessity for following the action In this case skilled wranglers controlled the animals so precisely that the sequence was filmed without mishap—although, after the take, hoof-prints were found only two inches from the tripod leg. Did Coleman remain with the camera while all this was going on? "Of course," he re plies matter-of-factly, "I had to keep



"building blocks" for sound engineers



MAGNASYNC DUBBERS

Producers have found that the use of a single recording channel is only a small part of the tremendous savings possible with magnetic film recording. The next step for the organization seeking quality, economy and independence is to equip to handle their own transfer work, assembly and magnetic mixing of dialogue, music and sound effects.

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Single Dubbers, from **$1190**

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Rear interior view of Selsyn motor electrical interlock

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- Available with 16mm, 17½mm or 35mm transports.

GENERAL SPECIFICATIONS:

Frequency response: 50 cps to 8 000 cps, ±2 db (16mm, 36 fpm), 50 cps to 12,000 cps, ±2 db (17½mm or 35mm, 90 fpm).

Signal-to-noise ratio: > 50 db.

Flutter and wow: 0.12% maximum RMS in any single band

Distortion: < 0.18% maximum RMS overall total harmonic.

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Then take the Extension Tube -- and we wish you would This is also a simple little tool It changes the effective focal length of your Arri lens Makes close-ups and things like that You should buy one just for fun In fact, you should buy a whole flock of them and add one onto the other to make a l—o—n—g extension Seems like it should be good for shooting freckles, gnats, profits Every knowledgeable, competent cameraman should have one Be in the know, be in competent, place your order today

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up the morale of my crew, didn't I?"

The high-point of action in "Savage Sam" takes place during a dust storm which develops into a hail storm punctuated with lightning To add the visual effect of hail to the sequence Disney's unique sodium matte process was used in which the principal action is photographed against an orange background and illuminated by 1200 foot candles of sodium vapor light. In order to create a strong enough lighting effect to bite through this unusually high level of general illumination, Coleman utilized two of the new Mole-Richardson "Tritan" 350 amp arc lamps, each of which produces 3200 foot-candles of light. Spotted down on the subjects and masked with shutters to create a flash, these units produced a most realistic lighting effect A Vistavision camera was used in filming this special effect sequence in order to give the laboratory the benefit of an oversize negative to work with in creating the intricate traveling matte composites

"Savage Sam" is the latest of six feature productions which Edward Coleman has photographed for the Disney Studios Beginning his career in 1921 photographing two-reel "Educational" comedies with director Norman Taurog, today he has an impressive list of photographic credits, including most of Jack Webb's feature and television films. Last year he received an Academy nomination as well as the exhibitors' Laurel award for his ingenious photography of the Disney comedy-fantasy "The Absent-Minded Professor" He recently completed the photography of the sequel to that farce, "Son of Flubber" •



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ZOOM LENS TECHNIQUE

Continued from Page 29

foreground and at the sides which help to give a feeling of depth in the long shot

Does this mean then that a zoom lens can only be used as a poor substitute for one kind of tracking shot? Not at all It has in fact added a new item of technique to those already available to film-makers There is, however one artistic proviso that goes with it. There is a school of thought which maintains that all camera moves should be motivated by some movement or action of the object, and that where this is not the case the audience becomes conscious of the camera—which is undesirable. While there is much to be said in favor of this view, like all other artistic theories it can be ignored with advantage under certain circumstances by a director. And there are, of course, many who would deny its validity in any case and who take the position that as the purpose of a film is to influence an audience either emotionally or intellectually in the way the director has determined, then any method of doing this is legitimate if it is a genuine part of the film medium And that zooming is such a genuine part there can be no doubt; the new technique it brings is this ability to approach and withdraw, slowly or quickly, not only under circumstances which would make tracking or using a crane impossible, but also in such a way as to create visual movements in space which no tracking or crane shot can give.

Quite apart from the dramatic possibilities it gives to makers of news films, it has very great value for documentary directors, and even in features, where the actual shooting conditions are usually under complete control, and consequently more elaborate arrangements for a precise set-up can be made. It can also be a useful tool, especially on exteriors It does in fact add a new form of movement to film making, and by so doing gives a further extension to the medium The combination of panning, or tracking, and zooming, or all three together creates new visual possibilities for a director to exploit A study of TV commercials of recent years will show how in this field, at least, these possibilities have been utilized very fully.

At the moment, the optical qualities of a zoom lens are usually not quite so high as those of standard lenses, but if they can be brought to these standards it would seem probable that given time a zoom lens may replace the battery of lenses of different focal lengths now used by a cameraman, because it would give an infinite gradation of focal lengths within its focal limits, and so could be used not only as a "zoom" lens but also as an adjustable one. ■

PLANNING—KEY TO BETTER COMMERCIAL FILMS

Continued from Page 35

that will be required for shooting each scene, also. any special equipment that may be required, which must be procured

A careful check should be made of all proposed interior locations to make sure that sufficient electric current is available for the lamps that will be required for illumination. For black-and-white productions, the usual house lighting circuits will often suffice; but for color, where more light is usually required, a portable power generator may be necessary. In large buildings and factories, sufficient added power for lights may often be obtained by running a cable directly to the main switchboard. The maintenance man on the premises or the engineer should be called in to make such a hookup.

Any props or costumes required for a picture provide a problem all their own When possible, these should be rented rather than purchased outright or made to order

In planning the order in which the different scenes or "takes" are to be filmed, consideration should be given to several factors. Scenes in a common locale or those which involve the same members of cast and crew all should be scheduled for shooting on the same day, even though such scenes may be widely scattered in the actual sequence of the script. Thus, if scenes 22, 83 and 147 all are scheduled for the same location, it is common sense to schedule them for shooting at the same time, instead of making three different trips to the location While shooting all

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scenes in sequence might be dramatically more understandable for the actors, it is rarely as economical to shoot them that way as grouping the scenes and shooting them all at the same time or on the same trip.

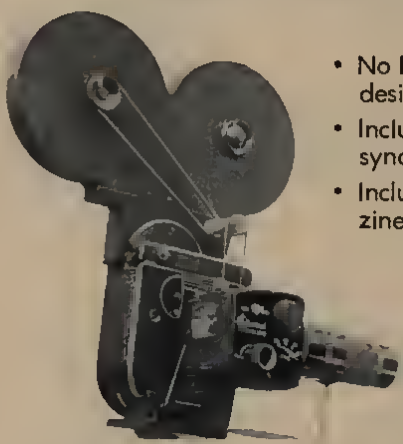
Where the time alloted for filming a picture is extremely limited, as is so often the case with commercial productions, an alternate shooting schedule can be prepared for interiors or exteriors. Here, weather conditions can be a factor. Exteriors should be scheduled for shooting first, weather permitting; but an alternate interior sequence should be charted for filming just in case bad weather precludes shooting out of doors at any time during the exterior filming schedule.

There is another important factor in film production that is often overlooked in production planning, and that is the time required for processing of the film by the laboratory, the recording of sound, and for any other services necessary to complete the film which the producer must obtain outside of his own organization.

Unless the producer plans and schedules his productions carefully, he may promise a completed film on a specified date, only to find that his laboratories

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HOLLYWOOD'S 16MM EQUIPMENT HEADQUARTERS

are unable to service him as promptly as anticipated It is advisable, therefore to deal only with those laboratories that can be depended on to help meet deadlines.

Both from the standpoint of planning and that of day-by-day execution of the production, the storyboard is one of the most valued tools of the film producer. The storyboard provides all concerned with a visualization of the production, sequence by sequence, in continuity form. Here the whole production can be studied without the need for reading the script page by page Ideas for improving it, for deleting unimportant detail, and for cutting costs come readily from storyboard studies.

Storyboards can be of two types: composed of photos or sketches of the basic action in each sequence, or of brief word descriptions typed or lettered on small cards Whether pictures or typed cards are used, they are arranged in sequence on a large panel for study. As changes are made, new cards or illustrations are made and substituted for the discarded material (See "Plotting Camera Angles With Storyboards," December, 1962, *American Cinematographer*.—ED)

No matter how much time is involved in pre-production planning, it is worth it many times in the better production, finer photography, and—most important — the greater profits that result. ■

FITTING THE CAMERA TO THE JOB

Continued from Page 33

Two different mounts are available—one for the F-86F jet fighter, and another to fit similar types of aircraft. The mounting arrangement permits accurate bore-sighting of the lens to correspond with the cross hairs on the pilot's gunsight—although some pilots prefer to view through a Mitchell viewfinder zeroed in with the lens On the F 86F the same stick button which fires the plane's machine guns also activates the camera motor

In addition to shooting forward, the unit can also be completely reversed to film the results of bombing, strafing and napalm runs. One version of the wing mount accommodates two 16mm cameras—one pointing forward, the other backward—so that both aspects of a run can be filmed simultaneously.

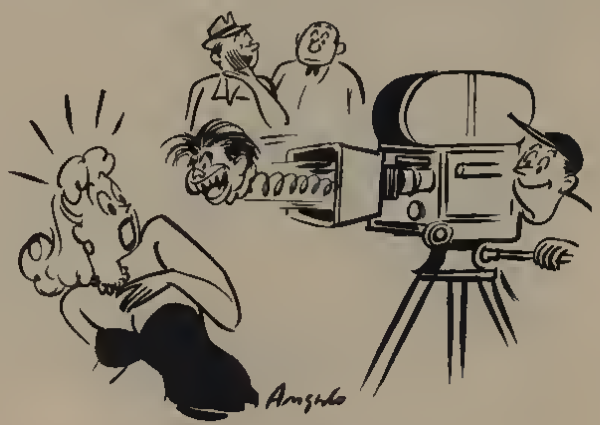
During the series of A-bomb tests made at Enwetok several years ago there was need for a rugged housing that would permit cameras to be set up as close as possible to the shot without being destroyed by the lethal blast The Lookout Mountain engineers tackled the problem and came up with a weird looking device officially called a Remote Camera Housing, but more familiarly known as "The Monster."

It consisted basically of a four foot length of metal pipe 12-in in diameter and with walls one inch thick One end the bottom—was sealed off by a ½-inch steel plate At the other end a steel disc 18 inches in diameter with a 12 inch round cut-out was welded to provide a flange. This unit constituted the bulk of the housing and the bottom three feet of it was buried in the ground on location to insure stability The top section of the housing consisted of another 14-inch length of 12-inch pipe edged with an identical flange and capped at the other end by a ½-inch steel plate. In this section a hole was drilled into which was inserted a short section of 4-inch pipe to form a port for the lens. The opening was covered with ¼ inch safety plate glass and secured by a retaining lock ring

Three L shaped brackets were welded to the inside of the bottom section of the housing, and a circular plate attached to the brackets to form a base for a Mitchell Pro Junior tilt head mounting a Bell & Howell Model 70 Filmo Camera Another version of the housing accommodated a K 25 aerial camera which shoots 4x5 color stills at the rate of three frames per second.

Once the camera was mounted inside the housing, the top "hat" section was lowered onto the base section and the two flanges securely bolted together. Concealed in the base were the batteries and relays needed to operate the camera's 24-volt motor. A photo-electric cell picked up the flash of the atomic weapon which triggered the relay and started the camera. This system was used because frequent postponements of the shots made the use of conventional timers impractical In this way, each unit would be self-sufficient without the need for wiring or trim circuits During an actual atomic shot a timer inside the housing automatically shuts off the camera motor after a three-minute run Lead bricks were placed around the "Monster" to shield the film from damaging radiation. Cameras were checked out with a strobe light in dry runs simulating the atomic flash

Several of these camera units were set up on various islands and atolls at Enwetok. It was merely necessary to dig a hole, bury the base of the housing, boresight the lens of the camera, and leave the unit in place to be triggered off by the blast itself The cameras incidentally recorded some spectacular footage, including scenes of birds flying during period of the shot



"It's improved her acting 100 percent!"

From the films it was clearly observed that the birds of dark plumage caught fire while those with light plumage did not—proof of the effectiveness of light-colored surfaces in reflecting heat from the blast.

Somewhat later, when Operation Wigman (a series of underwater nuclear tests) was initiated, the "Monsters" were again pressed into service this time as housings for the underwater cameras that were to record the sub ocean blasts. The housings were made water-tight by placing neoprene gaskets between the flanges and around the glass ports. Then they were attached to simulated submarines and lowered into the sea. Sequence timers were set to coincide with the blast so that the cameras would start rolling just before a bomb was detonated. No artificial light was employed. Using fast, Tri-X Pan film striking pictures of the shock wave were recorded as the simulated submarine was rocked by the underwater blasts.

As it may be noted here, the U.S. Photographic & Charting Service's record for achievement is not limited alone to photographic attainments. The Service is equally versatile in developing new and unique methods and equipment, whenever necessary, for sucessfully completing the photographic undertakings assigned to it. ■

ASC RECOMMENDATION

Continued from Page 35

ommendation #8.

B. Anamorphic (Squeezed) Release Prints

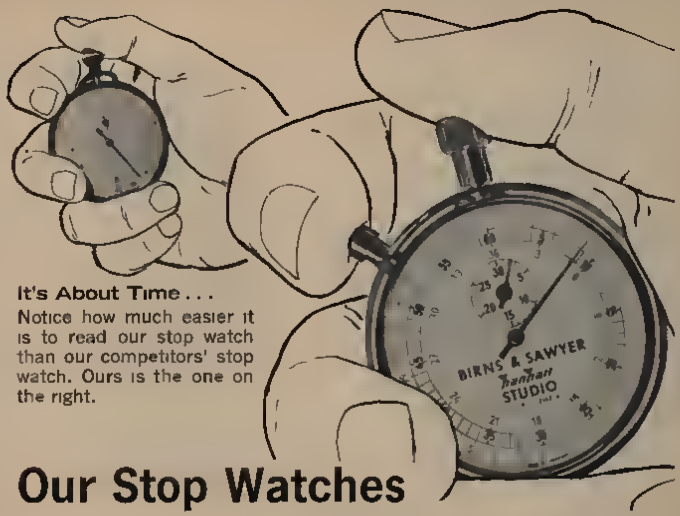
2.4 The main title and main credits on 2.35:1 theatrical prints should be within a height limit of 0.678" max. as per diagram "B"

2.5 This height specification is derived by taking the 0.565" safe action height times 1.2 which is the reduction factor in release print preparation as per block diagram of ASC Recommendation #8 figure "C".

2.6 The full 2.35:1 composition width of 0.839" max. can be used for anamorphic titles and credits since the special printer for the flat TV version can accommodate any horizontal spread condition to fill the width for safe display within the required 0.757" safe action area.

2.7 The camera aperture for titles as

Continued on Page 52



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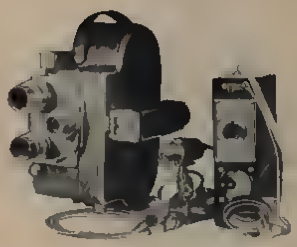
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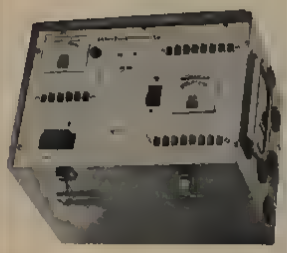
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NEW BOOK REPORTS

Animation Techniques and Commercial Film Production, *by Eli L. Levitan. Reinhold Publishing Corporation, 430 Park Ave., New York 22, N.Y. $11.00.*

Describes in detail the process by which a series of drawings is transformed into an eye-catching and successful animated commercial film.

The author, Eli Levitan, is one of those rare individuals who not only combines practice with theory, but can write about this combination with clarity and smoothness. An animation veteran who started with Max Fleischer in the days of "Betty Boop" and "Popeye," cartoons, he wisely assumes that the reader has no previous knowledge of film production. He begins with a brief, yet complete description of film production today, from script to final editing. Then are described the mechanics of the camera and how the various controls are used in the production of animated films.

The technical section includes what is easily the most thorough (and, perhaps, the only) explanation of how the field guide is used, the notations by which the animator gives instructions to the cameraman, and the various single and combined effects which give the animated film its universal appeal.

Following the technical groundwork, the reader is then taken into the world of the film editor whose skill transforms a mass of film into a motion picture.

Finally, and perhaps most important, there is a complete description of animation techniques. Profuse illustrations augment the authors' descriptions and technical treatises. There is virtually no area of animation technique as applied to commercial film production that is not dealt with.

The author's earlier book, *Animation Art in the Commercial Film,* has since become a standard work in the field. This book, *Animation Techniques and Commercial Film Production,* although complete in itself, takes up where the first book left off.

The Technique of the Sound Studio, *by Alec Nisbett. Hastings House Publishers, Inc., 151 East 50th St., New York 22, N.Y. $10.50.*

This book is intended not only for those who are directly concerned with putting sound programs together but also for the writer, director, actor, musician, interviewer, contributor of taped actuality, engineer, or anyone else in any of the many fields which come together in the sound studio.

The small film producer, newsreel cameramen shooting in sound, and the in-plant film worker especially will find this book of value because for the first time perhaps, it describes in detail all the procedures necessary to recording sound of professional quality on tape or film.

Author Nisbett tells the reader what to listen for when placing microphones, controlling relative sound levels, mixing, creating sound effects, etc. He reveals how best results can be obtained with any equipment from the simplest inexpensive microphone and recorder to that of the most elaborate recording studio. Film makers undertaking sound recording with the new compact, portable tape recorders now on the market, will find all this extremely helpful toward achieving top quality in film sound tracks.

8mm Sound Film and Education, *edited by Louis Forsdale. Bureau of Publications, Teachers College, Columbia University, New York 27, N.Y. $2.50.*

Informed speculation about the impact 8mm sound film on educational motion picture use, production, and technology are presented in this new 166-page paperback. Here is perspective on the many aspects of 8mm sound film and education which need to be considered. The book reports the proceedings of 8mm Sound Film and Education held at Teachers College, Columbia University, in November, 1961. The conference brought together nationally known representatives from education and photographic industries for three days to see and hear demonstrations of 8mm sound film and to discuss papers presented by experts. These cover major aspects of 8mm sound film and education, ranging from descriptions of laboratory practices to speculations on print costs in the years ahead, from discussions of the quality of 8mm small sound film to considerations of new types of projectors which will be stimulated by the development. The annotated bibliography is probably the most comprehensive yet assembled in the 8mm sound field.

This is a book for all concerned with the production and use of motion pic-

tures in the schools—the educators, the librarian, the film producer, as well as engineering and laboratory personnel.

The Decline of the Cinema, *by John Spraos. The British Book Center, Inc., 122 East 55th St., New York 22, N.Y. $6.25.*

Within the last ten years the number of people visiting British cinemas has fallen by nearly two-thirds and is little more than half the pre-war total, according to author Spraos, who points out that nearly 1,500 of the 4,500 cinemas functioning in 1955 had closed five years later. The author predicts a further substantial fall.

The causes of this drastic decline are traced to the competition of television and also to the dramatic halving of the number of new American films and to the difficulty of transferring a cinema's "congregation" when it is closed.

This decline has few parallels in recent times and in conjunction with a disproportionate and unexpected increase in the price of seats presents a fascinating study for the economist, which the author fully exploits. But the film industry is of general interest so that the author's conclusions and his social recommendations will appeal to the general reader, as well as those in the industry. ■

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THE MITCHELL REFLEX CAMERA

Continued from Page 37

mounted in the blimp This feature, plus the bayonet mount lenses and the BNC captive cam-type studio finder provide all the convenences of a BNC

Utmost versatility was a dominant goal in the engineering of the Mark II Reflex, according to Charles Austin, Marketing Manager for Mitchell. Instead of creating a new camera for one specific use, Austin points out, Mitchell's engineers have designed a camera that readily meets the needs of producers of research and documentary films, photo instrumentation and high speed cinematography for industrial research, special effects, background plates, animation and titling—as well as conventional theatrical and television film production

A comparison of the first Mitchell Reflex camera, described in the June 1960, issue of American Cinematographer, with the slick new Mark II indicates that a lot of engineering enthusiasm went into the concept of the latter—no doubt engendered substantially by the tests and the suggestions for improvement that came from the industry's cinematographers As one director of photography said as he examined it at the ASC "Here, at last, is a 35mm reflex camera with the ruggedness and scope of the Mitchell BNC, and made quite logically by the makers of the world's most renowned studio cameras." ■

ASC RECOMMENDATION

Continued from Page 49

per 2 4 shall be 0 870" by 0 735", as per ASC Recommedation #9

NOTE: It should be noted that dimension 0 870" camera aperture width reduced by 1 2 would give only 0 725" picture information compared to the required 0 868" max. and has, therefore, to be safeguarded by a 1 2 anamorphic unsqueeze step In practice any title of this type will be horizontally unsqueezed to suit the TV release requirements

A 2·1 squeezed title will be fully readable on TV even if it is not unsqueezed However, a special situation prevails where such title is superimposed over action squeezed in the same ratio.

Such titles require special consideration for TV release especially if they fade in and out over action to be shown in between, as is the case in some main titles and trailers

3. USAGE

3.1 The title areas outlined above apply to feature films in 1 85:1 and 2 35:1 aspect ratios

3 2 All titles should, of course, be photographed with a safe margin inside the width and height lines as shown in figures "A" and "B".

3 3 The recommendations for both flat and anamorphic main titles and credits do not in any way restrict artistic freedom as far as theatrical release is concerned ■

INDUSTRY NEWS

Continued from Page 8

Florman & Babb Expands Rental Department

Stepped-up activity in its equipment rental department has resulted in Florman & Babb purchasing new equipment for this department totalling in excess of $350,000, according to Arthur Florman, company President, who last month completed a purchasing tour throughout the U S , including a visit to Hollywood

New equipment includes Mitchell Mark II Reflex cameras, a BNC, a wide range of lenses including zooms and telephotos, Moviolas, sound projectors, 10 new Nagra ¼ inch tape recorders with sync heads, Moviola crab dollies, mike booms and parallels.

•

Gordon Catalog Debuts

Just about the most comprehensive catalogue of motion picture and instrumentation equipment compiled to date is that of Gordon Enterprises, North Hollywood, California, which is now in course of distribution to buyers in the industry.

Comprising 128 pages in a handsome, durable ring binder the catalog illustrates and describes hundreds of items of motion picture photographic, lighting, sound, processing, editing, laboratory, animation and exhibitor equipment A substantial section is devoted to photo instrumentation equipment, including high-speed, pulse, radar, streak, and oscilloscope cameras and accessories Every item listed in the catalog is also available for rental.

FILMING IN ASIA FOR TV

Continued from Page 27

In Manila the crew met the largest group of children of the entire trip The local sponsor of the American Bozo television show had thoroughly publicized the event in advance, As a result, nearly 15,000 youngsters jammed the Manila Zoo for the clown's appearance

Here the photographic job was relatively easy Farkas had one whole day in which to shoot, and wherever he turned his camera there were children Many of them were carrying Bozo balloons to add to the visual impact.

One of the most unusual places the crew visited was a water buffalo milk bottling plant in Bombay. This unusual UNICEF aided project produces millions of bottles of milk per day, according to the local milk commissioner.

In Burma at the famous Shwe Dagon temple where every visitor is required to take off his footwear before entering, Farkas shot several humorous scenes of Bozo attempting to take off his long clown shoes. He could not show the clown in his stocking feet, however, because it might have disillusioned the kids back home if they discovered that Bozo's feet were the same shape as theirs.

Here a religious procession of brightly garbed participants was also photographed Bozo in his own vivid costume joined in at the end of the procession. In the same sequence he did a grotesque burlesque of the Burmese female dancers. Because of the happy spirit of the festival there was no objection to this

Some of the most heart-rending sequences were filmed in Thailand where a Spanish doctor was working with leprosy patients This spot, about 40 miles from Laos had grown into a sizeable village as news of his treatment had spread.

Before the crew could shoot here, discussions were held with the village elders After the necessary arrangements were made, Bozo put on his show and got the children laughing As he handed out small gifts of candy, each youngster clasped his own hands and bowed in the traditional gesture of the country.

One of the most spectacular filming experiences was the Festival of Lights called "Dewali," celebrating the Hindu New Year at which time the city is

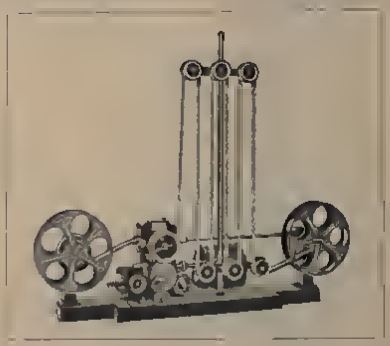


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One of the cameraman's problems was to get long establishing shots and at the same time fill the frame with lights. But there was no place high enough for the camera that would enable it to include the city buildings. It was then decided to introduce the festival as it occurs in an Indian home. These scenes were lit frequently with sparklers. The footage shot of this festival was enough to make a whole half-hour segment for the series.

Concurrently with the Bozo footage, Farkas had the added chore of shooting the sound interviews mentioned earlier. For these he often had to shoot indoors. He had carried along a supply of Lowel-Lights for both 110 and 220 AC current. Thus, he was able to light the interiors wherever he went.

These interviews included sessions with Madame Pandit (Nehru's sister), the president and vice-president of the Philippines, and the family of U Thant, among others.

For the sound interviews Farkas used Eastman Plus X film. The zoom lens was also used here and provided variety in the compositions throughout the continuous recording sessions.

When the tour was over cameraman Farkas estimated he had shot 20,000 feet of 16mm color film, in addition to the black-and-white sound film. All this footage was edited later by station WHDH in Boston. In addition, the Bozo footage will be re-edited into a one-hour film to be distributed by UNICEF.

This filming assignment is typical of many which Farkas has undertaken and has completed from his Hong Kong office. During the eight years he has been a motion picture photographer, he has received photographic assignments from 20 Century-Fox for its "Hong Kong" TV series, the Desilu "Barbara Stanwyck Theater," J. Arthur Rank "Interpol Calling," NBC "Our Man In Hong Kong" with David Brinkley and a host of advertising accounts. His most recent 35mm assignment was the location shooting for the Bing Crosby-Bob Hope opus, "Road to Hong Kong." ■

AFTER PHOTOGRAPHY, WHAT?

Continued from Page 25

The final edited 35mm printing negative, consisting of both camera negative and dupe negative sections, may then be utilized for either 35mm contact or 16mm reduction printing. Here, density correction (timing) of the scenes is part of the printing operation.

In dupe-negative printing, the 35mm camera negative may be cut (edited) in A&B rolls so that any required fades and dissolves will be incorporated in the contact-printed 35mm master positive along with the timing corrections of the individual scenes. (Wipes or other special visual effects require the production of optical dupe negative sections and cutting them into the printing negative, as explained earlier.) Thus, when either a 35mm contact or 16mm reduction dupe negative is made from the master positive, the dupe will be corrected for proper density and will also contain any desired effects so that the printing operation will be simplified.

A full-length 35mm fine-grain positive is printed from the edited (single roll or A&B roll) camera negative together with any and all optical dupe sections required for either choice in release printing. This is set aside as a hedge against loss of the camera negative—if printing is to be from this negative. And, the 35mm or 16mm dupe negative is made from it where release prints are to be made from a dupe.

A logical question at this point is: When is a First Trial Print (Answer Print) made? This print is made from the edited 35mm camera negative in order to make sure that everything is all right before proceeding with production of release prints. Where release prints are to be made from the negative, this will be the only First Trial stage. Other First Trials might include:

35mm First Trial print from a 35mm dupe negative, where 35mm release printing is to be from the 35mm dupe.

16mm First Trial reduction print where the 16mm release is to be made by reduction, or

16mm First Trial contact print where 16mm release prints are to be made via contact printing from a 16mm dupe negative.

One additional decision involves the choice of the release print leader, which

Continued on Page 56

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AFTER PHOTOGRAPHY, WHAT

Continued from Page 54

depends on whether the film is for television or theatrical use Each medium utilizes an SMPTE leader established for it The right leader should be specified at the time prints are ordered from the laboratory

No recommendation has been made here as to sound track provisions processing, dailies, sound prints for dubbing, etc., because much of today's motion picture sound recording is on magnetic materials, right up to the final mix However for release printing, either from cut negative or dupe negative, a 35mm B-wind negative printing density track is required

The foregoing relates essentially to black-and-white motion picture production In a future article, we shall deal with the problems, procedures and optional steps involved in the production of 35mm color release prints

The foregoing article was originally published in Vol 2, No 8 of the General Film *Rewind* It is condensed and reprinted here by permission of General Film Laboratories, Hollywood The flow charts at the beginning of the article are two of a series recently distributed by General —EDITOR

BEHIND THE CAMERAS

Continued from Page 20

Le ROEA STUDIOS

ROBERT HAGER, 'Perry Mason"*

M-G-M STUDIOS

WILLIAM SNYDER, ASC, "Cattle King' (Missouri Prod Inc Eastman Color) with Robert Taylor and Joan Caulfield Tay Garnett, director.

MILTON KRASNER, ASC, Moon Walk' (Enterpe Prod , P'Vision & Metrocolor) with Shirley Jones and Gig Young. George Sidney, director

JOSEPH BRUN, ASC, "Flipper" (Eastman color, shooting in Nassau, Bahamas & Fla.) Ivan Tors, director

HARKNESS SMITH, ASC, "Dr Kildare"*.

DALE DEVERMAN, ASC, "The Eleventh Hour"*.

WILLIAM SPENCER, ASC, "Sam Benedict"*.

ROBERT HAUSER, 'Combat"*

MAYFLOWER STUDIOS, N Y.

ERNIE CAPARROS, "Inside Danny Baker"* (pilot), "Ready for the People"* (pilot)

NEW YORK STUDIOS

GEORGE JACOBSON 'Emmett Kelly Show"*

PARAMOUNT STUDIOS

DANIEL FAPP ASC "Samantha" with Paul Newman and Joanne Woodward Melville Shavelson, producer director

W. WALLACE KELLY, ASC, "The Nutty Professor" (Jerry Lewis Prod ; color) with Jerry Lewis and Stella Stevens. Jerry Lewis, director

BORIS KAUFMAN, ASC, "All the Way Home" (David Susskind Prod , shooting in Tennessee) with Jean Simmons and Robert Preston Alex Segal, director.

IRWIN ROBERTS, ASC, "Fun in Acapulco" (Hal Wallis Prod) with Elvis Presley, Ursula Andes and Elsa Cardena. Mickey Moore, director

HASKELL BOGGS, ASC, WILLIAM WHITLEY, ASC, "Bonanza"*

PARAMOUNT SUNSET STUDIOS

FLEET SOUTHCOTT, "Gunsmoke"*

PRODUCERS STUDIO, INC.

EMMET BERCHOLZ, "Death Valley Days"*

REPUBLIC STUDIOS

GEORGE DISKANT ASC, Dick Powell Show"*, 'Adamsburg"* (pilot)

WILFRID CLINI, ASC, The Lloyd Bridges Show"*

HOWARD SCHWARTZ, ASC, "The Rifleman"*

CHARLES BURKE, "Ensign O'Toole"*.

REVUE STUDIOS

JOSEPH MACDONALD, ASC, "The List of Adrian Messenger" with George C Scott and Dana Wynter. John Huston, director

RUSSELL HARLAN, ASC, "Man's Favorite Sport ?" (Howard Hawks-Gibraltar Laurel Prod , Technicolor) with Rock Hudson and Paula Prentiss. Howard Hawks, producer director

ELLIS THACKERY, ASC, EMIL HARRIS, WILLIAM MARGULIES, ASC, JOHN WARREN, ASC, "Wagon Train"*.

WILLIAM MARGULIES, ASC, JOHN RUSSELL, ASC, LIONEL LINDON, ASC, "Alfred Hitchcock Presents"*.

BENJAMIN KLINE, ASC, NEAL BECKNER, ROBERT GOUGH , RAY FLIN, "The Virginian"*

JOHN RUSSELL, ASC, LIONEL LINDON, ASC, ELLIS THACKERY, ASC WILLIAM MARGULIES, ASC, "Alcoa Premiere"*

JOHN WARREN, ASC 'Best Years"*

FRED MANDL, ASC, RAY FLIN, EMIL HARRIS, "McHale's Navy"*

FRED MANDL, ASC, "Going My Way"*

LIONEL LINDON, ASC, 'Butterball Brown"*



The Film Kr[illegible]

RUSSELL METTY, ASC, "The Thrill of It All" (Ross Hunter-Martin Melcher Prod., Technicolor) with Doris Day and James Garner. Norman Jewison director

CHARLES LANG, ASC, "Charade" (Stanley Donen Prod., T'color, shooting in Paris) with Cary Grant and Audrey Hepburn Stanley Donen producer-director

RAY JUNE, "It's a Man's World"*

RAY RENNAHAN, ASC, "Laramie"*.

JACK MACKENZIE, ASC, "Leave It to Beaver"*.

NICK MUSURACA, ASC, 'Jack Benny Show"*, 'George Gobel Show"*

WALTER STRENGE, ASC, "Wide Country"*

TWENTIETH CENUTSY-FOX, N. Y.

DON MALKAMES, ASC, ARTHUR GANITZ, "The Laughmakers"*

WARNER BROS

LUCIEN BALLARD ASC, "Wall of Noise" with Suzanne Pleshette and Ty Hardin Richard Wilson, direcor.

CARL GUTHRIE, ASC, "True"*

LEWIS JENNINGS, ROBERT HOFFMAN, "Hawaiian Eye"*

HAROLD STINE, ASC, LEWIS JENNINGS '77 Sunset Strip"*

HAROLD STINE ASC, JACK MARQUETTE, 'Gallant Men"*

HAROLD LIPSTEIN, ASC, "Rampage" (Seven Arts Prod., Technicolor) with Robert Mitchum and Elsa Martinelli Phil Karlson, director

HASKELL WEXLER, "America, America" (Athena Ents. Corp Prod.; shooting in Athens) with Stathis Giallelis, Elia Kazan, producer-director.

BURT GLENNON, "The Dakotas"*.

ZIV-UNITED ARTISTS

MONROE ASKINS "Ripcord"*.

FOX WESTERN AVENUE

JAMES VAN TREES, ASC, "Dobie Gillis'*

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LESTER SHOAR, ASC, "The Beverly Hillbillies"*

ROBERT MOSENO, "Adventures of Ozzie & Harriet"*.

GOLDWYN STUDIOS

NORBERT BRODINE, ASC, "The New Loretta Young Show"*

INDEPENDENT

ERNEST HALLER, ASC, "The Lilies of the Field" (Rainbow Prod., UA release) with Sidney Poitier and Lilia Skala Ralph Nelson, producer director

JACK SPECHT, "Born Hunters" (Pendora Pictures Eastman color, shooting in Texas) with Hart Butler Ralph White, producer-director

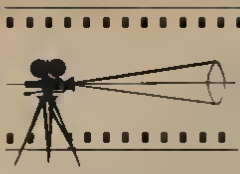
ALAN STENSVOLD, ASC, "Here's Las Vegas" (Producers Equity Corp., UA release; Pathe color) with personnel of Las Vegas shows. Mitchell Leisen, director.

ROBERT TOBEY, ASC, "Tomorrow You Die" (Jos F Robertson Prod.) with Peter Breck and Kent Taylor, Herbert L. Strock, director.

MURRAY DEATLEY, "The Lucrier Rose" (LeCamp Prod.) with Warrene Off and Helen Campus. John Hertelendy, producer director

JOSEPH BRUN, ASC, "International Showtime"*.

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WILLIAM MELLOR, ASC, "The Greatest Story Ever Told" (Geo Stevens Prod., UA release, P'Vision & Cinerama in Technicolor) with Max Von Sydow and Charlton Heston George Stevens, producer-director.

JOSEPH MACDONALD, ASC, "Muriel" (Argos Films Alpha, Paris & Dear Films, Rome, UA release, Eastmen color, shooting in France) with Delphine Seyrig and Jean Phierre Alain Resnais, director

JOSEPH BIROC, ASC, "Toys in the Attic" (Mirisch Co; P'Vision) with Dean Martin and Geraldine Page George Roy Hill, director

JOSEPH LA SHELLE, ASC, "Irma La Douce" (P'Vision & Color, Mirisch-Edward Alperson Presentation) with Jack Lemmon and Shirley MacLaine Billy Wilder, director

TED MOORE, "Call Me Bwana" (Eon Prods.; shooting in London) with Bob Hope and Anita Ekberg Gordon Douglas, director

JACK HILDYARD, "55 Days at Peking" (Samuel Bronston Prod., Super Technirama 70 & Technicolor, shooting in Spain) with Charleston Heston and Ava Gardner Nicholas Ray, director.

GEORGE FOLSEY, ASC, "The Balcony" (City Film Corp; Continental Distr. Co release) with Shelley Winters and Peter Falk Joseph Strick, director.

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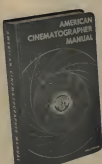


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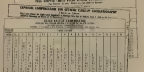
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